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## ORIGINAL ARTICLES.

### REVIEW OF EIGHT YEARS' WORK AT THE ST. LOUIS INSANE ASYLUM.

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Annual reports are in my opinion best to be considered in the light of a yearly accounting rendered the people to whom we are ultimately responsible for the proper administration of a public trust. To some this ever-recurring obtrusion of interests apparently so foreign to normal civic life, may prove distasteful; they would prefer to shut their eyes and ears to constant appeals in behalf of those who are branded either temporarily or permanently, intellectual misfits of the body politic. The English "Madhouse," the German "Narrenhaus," the French "Maison des foux"—with all of their horrors, shrieks and gnashings of teeth—do not represent long-spent evolutionary phases to many who, ostrich-like, refuse to use their senses, and using them, may learn that while they stand still, the world "do move." Gross misconception and long-cherished prejudice regarding insanity and the insane, are rampant at this late day, and it behooves the workers in this field of human endeavor to spread knowledge at all times and in all places; dissemination of knowledge must be followed by awakening of public conscience which is essentially the force making for protection against abuses of any and all kinds.

On the threshold of my third administrative term I may be permitted to submit an accounting to the profession and my fellow-citizens in the shape of a short resume of work done, results attained and plans deferred, within the last eight years of this institutions's life. As early as 1895 I strongly inveighed against the stigma of the latter's official title, recommending a change to the "St. Louis Hospital for the Insane." While my prayer has not been granted thus far, the following pen-picture may go to prove that methods adopted have lost their purely custodial character and conform today with modern "hospital" ideas. I am penning these lines at midnight of a cloudless summer's night when every window of the large institution is wide open, permitting the cooling breezes to enter and any possible noises to penetrate to the outside world. To the uninitiated it may appear almost miraculous that from the abode of seven hundred mentally afflicted not a single unusual sound reaches their ear, the reigning stillness of the night being rudely broken only by shouts and laughter of drunken revellers making night hideous at the adjacent street-corners. On such a night as this, which is not exceptional by any means, the visitor would find the wards filled, rather uncomfortably filled, with peaceful slumberers under the watchful eye of noiselessly moving night nurses. The latter may report that in the earlier part of the night some cases had called for the administration of a prolonged bath, of



additional food or of a few sleeping potions; the latter rarely number more than twelve. Outside of ministering to some other small wants and meeting possible emergencies the chief task of the night nurses consists in exerting a soothing influence. Kindly human presence is gratefully appreciated by a highly sensitive organization during the hours of darkness, when overwrought imagination is apt to paint fancied dangers and pitfalls in more vivid colors than during the hours of daylight. It took me two years of unremitting efforts to bring our night force to its present fair degree of efficiency.

In order to give the reader an adequate idea of the methods pursued in the treatment of the different phases of insanity, let us follow up a few cases from the very first. The great majority of our patients reaches us by way of the City Hospital, which at its present site has no adequate facilities for dealing with the insane. In my annual report of 1896-97 I pointed to this inadequacy in the following manner:

"As the patients are brought to us against their wills, their admission should be deprived as much as possible of all objectional features. An early shock to a sensitive nature may do irreparable damage, and could be mostly avoided if proper provisions were made. The admission to this hospital of a great number of patients through the City Hospital is full of obnoxious features. The City Hospital, in its chronically congested condition, without the proper facilities and trained attendants, is an exceedingly undesirable abode for the insane subjected to the process of preliminary observation. The overcrowding with patients and the deficiency in the number of attendants, necessitates a proceeding which seems to be most seriously rebelled against. I refer to the restricting of the patient's locomotion by means of a long strap attached to the bed by one end, while the other end encircles the patient's ankle. "Like a monkey tied to a grind-organ," "tied like a vicious cur," are frequent comments of our patients after admission here, uttered with so much disgust and indignation as to point clearly to the perniciousness of the whole process. Spacious and comfortable detention wards are a crying necessity, and a provision for such should not be overlooked in the plans for the new City Hospital." . . .

There is hope for the establishment of better accommodations in the near future, which should make the insane beneficiaries of early scientific treatment.

Reverting to our pen-picture, let us depict the usual course pursued in handling some typical cases after their admission. First of all, we receive a young girl in a state of acute mania—*i. e.*, the only genuine "maniac" of popular belief. The malady is characterized by a high degree of emotional and mental excitement; she talks incessantly, the articulatory apparatus often not being able to keep pace with the kaleidoscopic imagery of the brain; then she sings in snatches, dances about, climbs up on bars and screens, is at times abusive, not rarely destructive, always sleepless. This classic picture of morbid mental activity is accompanied with a marked physical let-down, with a lowering of all vegetative functions and great emaciation, partly due to persistent food refusal. Physical ailments elicited by the entrance examination receive at once the same attention as they would in the mentally unafflicted. Oft-repeated and prolonged warm baths, if need be; the administration of tonics and sedatives in case of unyielding sleeplessness, of a mild hypnotic (never morphine); forced feeding with most assimilable food and plenty of it; temporary isolation in a room (not padded cell, as popularly believed), away from exciting environment, then



again bed rest—these are the measures resorted to. After some time the excitement subsides, and is often followed by a period of reaction bordering on lethargy. At this stage psychic stimulation is full of help and promise; daily exercise in the open air on the lawn and amidst trees and flowers; removal to the convalescent ward with its pretty pictures, curtained windows, neatly furnished sitting room and dining room, its well-stocked library, piano, easy chairs, with its chorus drills and general cheerfulness; gradual introduction to light work, and to weekly and special entertainments characterized by good music, stimulating addresses on topics of the day and special features—all these tend to remove the ill effects of the malady from which our patient not rarely emerges completely recovered, and is able to resume her social position and her former duties.

The next patient presents clinical manifestations diametrically opposed to the ones cited above: in place of the elation and pleasurable excitement we find here the psychic self clouded by a profound depression with or without hallucinations and delusions of a self-depreciative nature, and then again a state of extreme agitation expressive of deep mental anguish. The melancholiac is the only actual sufferer in our hospital and not rarely offers stubborn resistance to our efforts at alleviation. Most careful bed-nursing with a view of preservation of vital energy, unrelenting struggle against absolute food-refusal and sleeplessness, and following in their wake, measures of psychic stimulation related above, will often yield satisfactory results. As this class of patients is always possessed of an irresistible tendency to self-destruction, constant watchfulness must be exercised, and even then successful suicides will occur, as shown by three cases recorded against our institution in the last eight years. The difficulties in guarding against such incidents are not appreciated by the laity; as a case in illustration I may cite that of a woman who through ups and downs had been safely guided past the shoals of suicidal mania during her three years' sojourn in our midst. Two charitably inclined women removed her recently from the hospital, in the face of my vigorous protest and in full confidence of their ability to cope with the difficulties explained to them. Five days after her release the patient succeeded in eluding her self-appointed watchers, purchased some carbolic acid, and died two hours after.

Of all the varied types of mental disease none is so apt to impress the uninitiated with such utter hopelessness as a case of "stupor." The patient does not give evidence of a spark of spontaneous conscious life, he is speechless, expressionless, sits immovable, in an attitude of complete apathy while the vegetative organs continue to do their work in a perfunctory way—in every respect the patient appears to be an automaton most nearly akin to the brainless frog of experimental physiology. As soon as it is recognized that the condition is not due to permanent organic disease, but to exhaustion of the brain, active measures are taken with a view to correcting nutritional faults and stimulating the physical and psychic make-up of the sufferer. Gradually the brain regains its normal equilibrium, and its owner eventually finds himself fit to return to useful citizenship. Not every case of "brain-fag" is allowed to reach the low depths of "stupor" before admission to the hospital. The neurasthenic whose nerve energies have suffered through shock or the grinding process of daily strife, appears not rarely at our gates as a voluntary applicant for treatment, bringing in person the requisite commitment papers. His means do not permit him the



luxury of a private sanitarium and the general hospital with its multitude of physical sufferers and its surgical atmosphere has proved to be an unfit abode for an individual with a shattered nervous system. Quite a number of such patients have left us in the past after partial or complete recovery, carrying with them the conviction of having found in our convalescent wards with their scrupulously selected denizens and their atmosphere of reposeful leisure, a haven of absolute rest. "Nervous prostration" has ceased to be considered a rich people's disorder since it has been found prevalent among the dwellers of the tenement districts. There is no help for the latter unless their environment can be radically changed, for even the opulent sufferers do best away from their home surroundings. As the municipality is struggling with so many elementary problems, relief in this direction can hardly be expected from it. Private charity which every few years contributes to the erection of new general hospitals would cover itself with undying glory by the establishment of a sanitarium for nervous diseases for the poor with special wards set apart for pay-patients, thus rendering the institution partly self-supporting. Early and proper treatment of the nervous diseases will, in many instances, stay the development of insanity, which alone would give the suggested sanitarium its *raison d'être*.

Occasionally we receive a patient suffering with septic or typhoid delirium, whose mental manifestations are of such a nature as to render the facilities of a general hospital inadequate from a point of view of safety for the patient and others. In the course of the year a young man was brought to us afflicted with a grave form of typhoid delirium; he received the most careful nursing and treatment in accordance with modern methods prescribed for this disease, and after four months was able to return to his parental farm. I mention this case partly to show that our attention is not entirely taken up by our special line of work. The insane who dwell around us are subject to every and all diseases that human flesh is heir to. Not an organ, not a single portion of the human body, but may present in the insane the same morbid picture as we find in the mentally sound. While our sick-chambers are fairly well equipped with comfortable hospital beds, air-beds for the bed-ridden, fly-screens, filtered water, deodorants, and effective disinfectants of our own manufacture, and, last not least, with attentive nurses, still we are very much handicapped in our work by the fact that these sick-chambers are integral parts of a general, greatly overcrowded ward. In speaking in behalf of the erection of a specially equipped, detached building I had this to say in my third annual report: "Such an infirmary would not be in the nature of a makeshift, but will fill permanently a long-felt want, which sooner or later will have to be filled. I will mention but a few points that will indicate the crying need for such a building. Until it is erected, we shall be compelled, first, to place patients afflicted with tuberculosis, erysipelas, diphtheria, etc., on the crowded general wards, isolation being out of question; secondly, to allow child-birth to take place at times in the most disturbed wards; thirdly, to have the most feeble and unclean patients mingle with the clean; fourthly, to undertake surgical procedures without aseptic surroundings. More could be said on this subject, but I believe I have said enough to substantiate my claim in favor of the erection of a separate infirmary." I may add that in many cases relief could be given today by radical surgical methods if we had the proper surgical facilities; at present I am able to offer the benefit of such treatment only to patients whose mental condition renders them absolutely safe sub-



jects of a temporary transfer to one of our general hospitals. There are grave objections to be urged against a transfer, even in these few instances, from the undeniable fact that the stigma of being an inmate of a hospital for the insane follows the patient to the general hospital and causes the application of mechanical restraint to patients who before had no personal knowledge of even the existence of such restraint. Regarding this whole question of mechanical restraint, I will say that in hospitals commanding an ample number of carefully selected and trained attendants, such measures have to be resorted to in very exceptional cases. As our roster of employes places the ratio between attendants and patients at the inexcusably low figure of less than 1 to 20, we cannot entirely abolish mechanical restraint, but at any one time, of our seven hundred patients, hardly over a dozen call for restraint with soft appliances of the least objectional pattern, which is a fairly good showing under prevailing conditions.

Another class of patients requiring and receiving a great deal of individual attention is that afflicted with incipient alcoholic insanity of an acute onset and rapid course. No stimulants whatever, plenty of tonics and food, baths with cold affusions, vigorous exercise and a good deal of heart-to-heart talk are the agents employed here. Not having any elixir of will power at our disposal, we must be satisfied with putting our patients in as good a state of resistance as possible, and for the rest trust to their inherent power of self-control. Quite a number of men have not disappointed us, as they have been able to hold responsible positions for some years since their release. Others have suffered relapse after relapse; in these cases searching examination nearly always discloses the existence of a profound hereditary taint blighting the entire organization of the individual. Habitues to other drugs are treated in a similar manner, but usually without anticipation of lasting results. While it cannot be gainsaid that the possibility of attaining favorable results may act as an additional incentive to our labors, it must not be thought that irrecoverable cases are treated with any less attention and care. From a tabulated statement, incorporated in this report, it will be learned that we have received in the course of the last eight years: 169 epileptics, 293 imbeciles and idiots, 320 senile dements, 332 paretics, 398 secondary dements. The epileptics receive the usual medical treatment, and a few of them are put to outside work. They are rather irritable and excitable, even during their lucid intervals, and do not mix well with the other insane. As they have to be scattered in different parts of the institution, a proper regulation of their diet in accordance with scientific precepts is rendered almost impossible. The establishment of a colony, after the pattern of the Craig colony in the state of New York, would prove the only satisfactory solution of this vexed problem. The proper disposition of cases of idiocy, whether congenital or superinduced by post-natal disease, does not offer great difficulties. Scrupulously clean, hygienic and commodious quarters and unceasing attention to the physical wants are all that is required in dealing with this class of defectives. As much as my whole nature may rebel against the teachings of the advocates of "euthanasia," I am willing to concede to them the best of the argument in these cases whose mental development is registered at zero without evincing at any time of their earthly existence even a spark of conscious life. With regard to imbeciles, I expressed myself in our twenty-ninth annual report as follows. while speaking of a concrete case: "This child could doubtless be developed by methods in vogue in schools and homes for imbeciles. The absence of such in-



stitutions in our state is to be deeply deplored, as I have but recently asserted in my paper read before the Missouri State Teachers' Association at Jefferson City. You know how I have never failed to point to the incongruity of sending imbecile children to an institution for the insane. Under existing circumstances I do not see any other way of taking care of this unfortunate class. The house of refuge has never been intended for the shelter of the latter, and it should not be burdened with it." In a few select cases the sojourn at our hospital was followed by rather gratifying results. A girl of twenty, with a mentality of a child at the age of ten, was taken in hand by my wife, and made surprising progress in the acquisition of some of the more simple accomplishments; she succeeded in memorizing poems and reciting them with a fair accuracy as to form and expression; through participation in chorus drills she developed quite a musical ear; she learned to wield the crochet needle and to do housework. It fell to my share to arouse her ethical self to a proper appreciation of the property rights of others. She was finally given a good home by a brother of hers, and for these three years has been considered a pleasant and useful addition to the family. Another instance of this kind is presented by a boy of fifteen, endowed with defective mentality, lack of self-control and no love for work. His rather short stay taught him self-control; he is now temporarily employed at a box factory. Hardly a Sunday passes but that our lad visits his friends and his "play-ground," and many a weekly entertainment is graced by his amusing presence.

This work is mainly educational, and we are hardly prepared to do justice to it on a large scale; besides, the constant pressure caused by the influx of fresh acute cases makes the transfer of the feeble-minded, as well as other so-called incurables, to the insane department of the poor house a matter of dire necessity. It is not one of choice on my part, as I have never missed an opportunity of protesting against our present mode of disposition of the chronic insane. In my earliest report I said: "There never was a greater legislative blunder committed than the one which has taken the complete control of the great bulk of chronic cases out of the hands of the superintendent of this institution, and this in the face of the modern tendency to remove all institutions dealing with the insane from non-medical control. The existence of such institutions for the insane, whether private or public, should be made impossible by prohibitive statutory enactment. A man equipped with the essentials of scientific knowledge is the only one to be intrusted with the supervision and direction of an establishment of this kind; the physician living in the midst of his patients is the person to be invested with such powers. There are a hundred and one problems connected with the management beside those of feeding and housing the insane. This plain statement of plain facts does not carry with it any personal reflection; it is the system which is vicious and calls loudly for speedy reform." These words were penned in my capacity as medical adviser to the poor house. During the last revision of the municipal code even this last vestige of medical supervision was removed, and today nine hundred insane are entirely deprived of scientific care. I think it may be assumed as a foregone conclusion that the necessary funds for the urgently needed additions to our eleemosynary institutions will be forthcoming in the near future, and I fervently hope that at that time a rearrangement of conditions at the poor house will be inaugurated. With this in view, I have repeatedly suggested the purchase of a tract of arable land in an accessible part of the county, the erection of inexpens-



ive, sanitary cottages and the extensive employment of pauper labor to bring the farm as near to a self-supporting basis as it is possible to do. After the removal of the paupers, the institution should assume the character of an annex to the acute hospital. Additions to buildings should be made with a view of more proper classification and of establishment of industrial departments; the feeble-minded children should receive some schooling, chiefly by means of educating the brain through the hand; senile dements could be allowed to live out their lives in the approved Scotch open-door fashion; the remaining mass of afflicted beings would receive the benefit of constant psychic stimulation, and would be spared the fate of that schoolmaster whose three years' sojourn in a Wisconsin county asylum had transformed him from a bright, intelligent companion to an automatic dullard, and this to the surprise and chagrin of the warden. Absence of mental food must invariably lead to mental scurvy and starvation, and we have no more right to starve the brain than the stomach. The problems involved in the care of our defective, indigent and sick fellowmen are not all arithmetic and ledger—to their adequate solution are required generous draughts on human kindness and unselfishness. If this is twaddle, then let us have all the twaddle we can lay our hands on!

Among the irrecoverable cases none require as much attention and actual care as those of general paresis. This is a progressive, organic brain disease, running usually its fateful cycle in from three to four years. During the phases of excitement the treatment accorded these patients is very similar to the one described above for that of mania or melancholia. Temporary improvement almost always takes place, thus interrupting the course of the malady by more or less prolonged periods of partial clearings—by so-called remissions. During such periods the patients' friends will not rarely doubt the insight of the physician-in-charge, and remove the patient from the hospital only to return him in due course of time. It cannot be disputed that this dreaded malady counts among its victims an ever-increasing number of dwellers of our large cities. The prevalence of paresis in our own hospital is best illustrated by the following figures, showing admissions for every one of the last eight years:

In 1895-96: men, 16; women, 1; in 1896-97: men, 23; women, 3; in 1897-98: men 27; women, 7; in 1898-99: men, 32; women, 2; in 1899-00: men, 26; women, 2; in 1900-01: men, 43; women, 9; in 1901-02: men, 48; women, 20; in 1902-03: men, 58; women, 15. Total—men, 273; women, 59.

In a total of 3,044 admissions we found 332 paretics—*i. e.*, nearly eleven per cent.

The foregoing sketch of our methods will, I hope, convince the kindly disposed critic of the arduousness of the task put before us, and of the unquestioned honesty of our efforts. It must be admitted that results are not always as favorable as we might wish, which is hardly surprising when we consider that the brain, with its exquisitely delicate fabric, will naturally yield less readily to measures taken with a view to restitution of its normal functions than any other organ of the human body. The rate of recovery is not found to be very great in any hospital, nor any part of the world. Here I may mention as a piece of unwarranted pessimism, the oft-made assertion that no patient after a readmission should ever figure on our records as recovered. This attitude is justifiable only towards the cases of periodic or circular insanities, in which the regularity of the recurring attacks is in itself a striking characteristic feature of the respective dis-



ease. In other types of insanity each attack stands for itself just as each attack of pneumonia is treated as an independent entity. If the hospital treatment helps a patient to such an extent as to enable him to fill his place in society creditably and successfully, it is certainly entitled to claim this result as a recovery. Statistical data are also misleading, because the fact is lost sight of that a great majority of the patients are afflicted with irrecoverable forms of insanity at the time of their admission. As this is rather an important point, I shall interpose here a tabulated statement, showing the movement of our population during the last eight years, and follow this up with numerical analysis of the different types of insanity for the purpose of establishing a nearly just basis for the calculation of the rate of recovery.

|                                          | 1895-6 | 1896-7 | 1897-8 | 1898-9 | 1899-0 | 1900-1 | 1901-2 | 1902-3 | Total |
|------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| Number at beginning of year...           | 378    | 400    | 481    | 524    | 583    | 601    | 669    | 666    | ....  |
| New admissions (less readmissions) ..... | 234    | 284    | 373    | 384    | 412    | 436    | 441    | 480    | 3044  |
| Total number treated ....                | 612    | 684    | 854    | 908    | 995    | 1037   | 1110   | 1146   | 7346  |
| Discharges, recovered and improved ..... | 35     | 91     | 96     | 98     | 119    | 104    | 101    | 102    | 746   |
| Discharges, unimproved .....             | 92     | 15     | 49     | 63     | 70     | 90     | 107    | 86     | 572   |
| Transferred to poor house....            | 60     | 46     | 143    | 113    | 169    | 90     | 143    | 163    | 927   |
| Deaths .....                             | 33     | 55     | 54     | 70     | 55     | 97     | 112    | 128    | 604   |
| Remaining at end of the year....         | 400    | 481    | 524    | 583    | 601    | 669    | 666    | 686    | ...   |
| Daily average,...                        | 380    | 446    | 516    | 554    | 631    | 660    | 677    | 681    | 568   |

The low number of 378 patients at the very beginning of my administration in 1895, is to be explained by the fact that several hundred patients had been transferred to the poor house in the previous year. The most striking feature of this table is the one pertaining to new admissions, which have grown from 234 in 1895-96 to 480 in 1902-03, the total number treated having increased from 612 to 1,146, and the daily average from 380 to 681. Parenthetically, I may say that with all this stupendous increase, not a cubic inch has been added to our accommodations.

Of the 3,044 new admissions were: Not insane, 13; unascertained on account of too short a stay, 96.

*Irrecoverable.*—General paresis, 332; senile dementia, 320; secondary de-



mentia and dementia præcox, 398; imbecility and idiocy, 293; epilepsy, 169; other psychoses, 168. Total, 1,680.

*Doubtful*.—Alcoholismus chronicus, 173; morphinismus, 25; saturnismus, 2; neurasthenic insanity, 41; hypochondriacal insanity, 12; hysterical insanity, 4; lues cereбрalis, 36. Total, 293.

*Recoverable*.—Mania, 354; melancholia, 374; stupor, 72; acute hallucinatory delirium, 30; alcoholismus acutus, 103; cerebraesthesia, 26; septic delirium, 1; nicotinismus, 2. Total, 962.

If we add to the 962 newly admitted cases, 119 found at the beginning of 1895-96, we face a total of 1,081 recoverable cases out of a total of 3,422. As the above table gives the discharges of recovered and improved patients as 746, the rate of recovery appears for the entire number as 21.8 per cent., and for the recoverable cases as 69 per cent., which must be considered a fairly good showing for a modestly equipped public hospital.

Of deaths we had 604. Causes are given as follows: Paresis, 233; other brain diseases, 130; senility, 96; pulmonary tuberculosis, 65; other infectious diseases, 12; suicide, 3; accident, 3; various organic diseases, 62.

The death rate computed for the total of 3422 cases is 17.65 per cent., of which 10.61 per cent. are attributable to paresis and other brain diseases. During this entire period we had but two deaths from typhoid, two from erysipelas and one from diphtheria. We have been singularly free from epidemics, which points to good sanitary conditions. Every patient who did not show a good scar was subjected to vaccination.

If the careful perusal of the foregoing review will succeed in convincing our employer, *i. e.*, our home-city, that an honest effort has been made to redeem the pledge for the introduction of hospital methods, its compilation has been worth the trouble. The actual results of eight years of labor may fall short of being brilliant, but brilliant successes do not fall to the share of toilers in this field the world over. The nature of the work is of necessity both scientific and philanthropic. With us the scientific part is confined to the practical application of principles and truths evolved in the study and laboratory of men who spend their days in original research. I have never failed to point to our utter inability to add even a single jot to the science of psychiatry, not having at our disposal either financial means or a trained corps of scientists. Our task consists in attempts at restoration of the afflicted human mind to its normal function whenever feasible, and in efforts to stay further deterioration when a return to pristine integrity is made impossible. I should be utterly deficient in all sense of appreciation did I not express my gratitude for the marked growth of confidence in our institution on the part of my professional colleagues and other fellow-citizens. While it has not acted consciously as an incentive to our labors, this growing confidence must eventually arouse sympathetic public opinion upon which public wards are dependent for their well-being. Relatives and friends of the afflicted have been progressively losing the fear of the "Mad-house," and this has insured an earlier confinement with its promise of better results or avoidance of dangerous social complications.

Some observations regarding the attitude of our patients toward the work done in their behalf, may legitimately find mention here. Being as a rule entirely devoid of all insight into their own condition, most of them are unwilling victims of the confinement and strenuous objectors to any line of treatment



instituted. In spite of this fact among the large mass of teeming humanity possibly a dozen may be found at any one time manifesting deep-rooted hostility toward their environment which is held responsible for their delusional grievances and persecutions. The others meet us on all occasions with outspoken expressions, by word and action, of friendship and kindness. Voluntary applications for commitments by new-comers and for recommitments by patients on the verge of a relapse, have been increasing at a gratifying rate from year to year. It is a common experience with us to see the latter's friendly attitude changed to hostility after the full development of the malady. A middle-aged man wrote after his release and before his departure to another city: "Permit me to express to you and your colleagues my heartfelt thanks for the assistance you extended to me in the dark hours of my severe sickness. I shall write you more when I am stronger and in the best of moods" . . . . . and in a post-script: "I now realize the seriousness of my case to the full extent." Some time ago I have learned that this man has returned to this city and to his former overindulgence in stimulants; and that he spends his time now, in spreading blood-curdling reports about this institution and its methods. An improved or recovered patient never leaves without a cordial handshake and words of appreciation, and this without distinction as to age, race, color or sex. Others have earnestly promised to increase our clientele by persuading some of their "nervous" friends to come here for a rest up. Only recently we had two cases in which release was impractical because the patients flatly refused to leave, making dire threats of "playing crazy" in case of forced release; in either instance the allurements of our flesh-pots had no weight, as good homes were offered to both recalcitrants. Letters have reached us from abroad and other cities of this country, indited by patients after return to their respective homes, and each one expressive of genuine appreciation; one young girl writes from beautiful Switzerland of her "home sickness" for this place that appears to hold so many horrors to the uninitiated. To render this one undeniably pleasing phase of our life more vivid I shall cite passages from a few letters selected at random. One woman, since released, writes to her relatives: "Do not be uneasy about me as I feel if there is any possible way for me to get well, it is out here where there is quiet and complete rest, fresh air and beautiful sunshine, best of medical care and the kindest home attention from the nurses." A young girl, after relating her experiences at her home where she died eventually of gastric ulcer, says: "Not having much late news or news of much interest to tell them here at home, I have explained to them the kind words and the amusements done merely for our own pleasure, which have been tendered us by you and all the rest of the doctors and attendants, which have made me feel a great deal more at home with you all than it would have been otherwise." This was a case of simple hysteria and of self-commitment. As a last sample I will quote from the letter written by an intelligent, well-bred man who has entered a career of usefulness. After a lengthy prelude, dealing with personal matters, he says: "The asylum was more like a home than anything else to me, and I always felt when there as if I was simply one of a big family—everybody there treated me most kindly and the friends made there are not by any means the least loved by me. My sojourn will always be most pleasantly remembered and marks an epoch in my life, as it was from there I went forth a sound, healthy man, fit to do my share in life's struggle."



Such testimonials emanating from within the walls of the "House of Sorrows" must be a surprise to many, and are here given for the purpose of enlightenment. We do not claim more than to have done our duty, but it is most gratifying to have our efforts appreciated by those who are surrendered into our hands unconditionally for better or for worse. It would be an egregious error to assume that the higher standard reached by our hospital has been the result of one man's labors. Unless he had in his possession the magician's wand he could not cope with the intricacies of the problem single-handed. The successful execution of his plans and methods must fall, as a matter of course, to the share of properly selected and qualified employes, representing all branches of service. The engineer, carpenter, painter, gardener, yardman, cook, the house-keeper, seamstress, laundress, house-girl—all these come in close contact with our working patients, and can do or undo a good part of our work directed toward the improvement of the latter's condition. Some training and a good deal of tact are required for proper dealing with our peculiar human material. It stands to reason that a woman or man having received some training as attendant under direct medical supervision and instruction must be considered best fitted for the work in the different departments of the hospital, all of which give constant employment to quite a number of patients, and it must also be conceded that with prolonged service and growing experience their value for the work in hand must necessarily increase. If this is true of other employes, how much more true is it of those who are charged with carrying out all the details of the medical treatment of our patients. The question of proper qualifications of attendants is in importance secondary to none in the management of a hospital for the insane. I have expressed myself so exhaustively on this subject in the past that I cannot do better than quote almost verbatim my utterances incorporated in our twenty-seventh (*i. e.*, my first) annual report for the fiscal year ending March 31, 1896:

"As much as I might try to bring myself in direct relation with the patient, I must, necessarily, look to others for carrying out the treatment in all its ramifications. These others are pre-eminently my attendants. They live among the insane as their daily—nay, hourly companions. Without efficient attendants my efforts would prove distressingly barren of results; I should be guilty of uttering beautiful words of promise without the slightest hope of ever redeeming my promises. The almost kaleidoscopic variety of measures to be thought of in the treatment of insane patients, presupposes peculiar qualities in those who are called upon to put the measures into execution. I do not intend to depict the beau ideal of an attendant as he or she might descend to us from the spheres of perfection, for I am at all times willing to make allowances for things of the earth earthy, still there is a certain standard to be upheld, below which no man or woman should be regarded eligible to such a position of trust. Attendants should be young or middle-aged, of robust health, good physique, even disposition, fair education. They should be inherently possessed of the love of their work, and some of them have special endowments in the musical line, and before everything else, they should have some experience in the duties required of them. An attendant must perform many of the duties of the trained nurse, as taking and recording blood temperature, administering medicines and enemata, etc., etc., all this tending to show the necessity of establishing training schools for attendants with a full curriculum. To me the urgent



necessity of such a step is so perfectly self-evident that I cannot appreciate the difficulties placed in the way of its realization. The need of trained nurses in a well-equipped hospital for the physically sick is to-day conceded by all who have any acquaintance at all with the requirements of such an institution. That a hospital for the mentally alienated would presuppose in its corps of attendants special training, seems not to appeal to the same people with equal force. Some day they may have the misfortune to have a member of their own family become mentally afflicted, and to face the necessity for placing him or her in the hospital. Would they not tremble at the thought of leaving their dear ones in charge of untried, perhaps brutal, novices? A short stay among the insane, the temporary assumption of the duties of a superintendent of such a hospital would unquestionably act as an educational factor of the most convincing nature. To all the other worries of the latter position is superadded one that overshadows all the rest, and that is the possible abuse of the insane at the hands of their attendants. It is a publicly well-understood fact that there are no other institutions in which abuses can be practiced with greater impunity than at a hospital or asylum for the insane. The prisoner in jail or penitentiary may expect retribution to follow mistreatment of himself because his evidence, if corroborated, will be considered valid, while the insane does not inspire the same confidence, and often justly so. The great importance of the question of abuse is best illustrated by the avidity with which the public press, and in its wake, public opinion, catch fire at the slightest hint, or even a statement of a discharged, hence disgruntled employee. The question is a vital one, and has occupied many minds, and I do not need to assure you that I have given a great deal of thought to it and shall continue to do so, especially as the constant fluctuation in our force of attendants keeps adding new fuel to my thoughts."

I need hardly add that through all these years this problem has never lost its significance for me, while the harrowing fears of any sort of abuse have vanished long ago. Some of our most trustworthy attendants are to be found today among those who came to me as a heritage, and showed intelligent and approving acquiescence in new methods altered in keeping with modern conceptions and ideas. On the whole our hospital may honestly claim today the possession of a fairly satisfactory corps of attendants: a further step toward more radical improvement can be taken only when the establishment of the long-cherished training school will be allowed to emerge from the phase of an iridescent dream into that of hard and fast reality.

Before entering upon the review of the administrative part of our work for the last eight years I will inject here some few data referring to our last fiscal year, which has been rather uneventful. The number of patients at the beginning of the year was 666, 390 men and 276 women; newly admitted were 480, 292 men and 188 women; the total number treated was 1146, and the daily average 681.

Discharged as recovered and improved were 102, 58 men and 44 women; as unimproved 84, 55 men and 29 women. Under this caption nothing calls for particular attention, except the removal of an alcoholic in the face of my most vigorous protest; he gave way to temptation soon after his release, and is now back with us under the charge of murder. This patient had recovered from the acute effects of the drug, but should have prolonged his stay at the hospital with the hope of gaining in power of resistance, but under the present entirely med-



ical form of commitment and confinement of insane patients, an absolute refusal to demands for release is hardly safe. It is rather remarkable, but none the less true, that even at this late date lawyers can be found in our own city, who are willing to impugn the motives of this management in keeping an individual confined—a management that would stake its life for the welfare of its charges. The municipality does not assume any responsibility for our acts that are performed in strict accordance with the provisions of our official oath. A few radical changes in our laws would make annoying damage-suits less likely to occur. Our charter authorizes the municipality to “confine” insane persons, leaving the *modus operandi* to be determined by the municipale code. A simple provision in the latter could make it incumbent on the officials concerned today in the commitment of the insane, to certify each and every case to one of our courts in session, who in turn would dispose of the case in perfect harmony with legal requirements—a procedure followed now in our county courts. Among the discharged patients twenty-two were non-residents who were sent to their respective homes after sufficient improvement to enter on a journey with any degree of safety. Their destinations were as follows: Missouri, 6; Illinois, 5; Texas, 2; Tennessee, 3; Nebraska, 1; Wisconsin, 1; Mississippi, 1; California, 1; New York, 1; Switzerland, 1.

As not insane was discharged an old, eccentric umbrella-mender who managed to get and give a good deal of fun while here, and was sent about his business with the fatherly injunction to mend umbrellas and his ways. We had one elopement to our discredit, but I still hold to my original attitude with regard to these incidents; while elopements should be avoided they cannot be rendered impossible, for even jails and work-houses with their strong fortifications, clubs and guns, are not able to hold all of their inmates all the time. Unless manifesting signs of inexcusable laxity, such incidents at a hospital should hardly deserve harsh criticism, as it may frighten a timid management into readoption of mediæval walls and restrictive measures, which, as one sin begets the others, are invariably followed by an absolute increase in the number of attempted and successful escapes. In spite of all possible vigilance it will happen that a patient placed into the superintendent's personal custody by an order of the criminal court, will make good his escape through application of superior cunning and strength. Such occurrence is always to be deplored, but it cannot be expected to affect the general policy in vogue in dealing with the insane. Our enlightened courts recognize the indisputable fact that prison methods could never lead to the recovery of the afflicted, and would make their instructions issued to the superintendent “to hold the prisoner *until cured*” a piece of hollow mockery.

In the course of the year 163 patients, 77 men and 86 women, went to swell the population of the insane department of the poor house. Of deaths we had 129, 85 men and 44 women; the prevailing causes were paresis, 47; phthisis pulmonalis, 26; senility, 26; status epilepticus, 6. One aged negress sustained in a fall a hip-fracture, and died of shock. Barring this case, the year has been agreeably free of accidents. It is true that one of our base-ball devotees sustained a Pott's fracture while “stealing a base,” but this accident would receive only passing notice by our institution-chronicler, for no sooner had nature and art succeeded in rehabilitating the injured limb than our man was discovered in his favorite occupation of stealing bases. Such unabashed enthusiasm can only



be appreciated by insiders who have watched the gradual evolution of our "asylum nine" from embryonic beginnings to its present importance. Saturday afternoons organized teams from all over the city are arrayed in battle with our home team, and the pennant is but rarely permitted to leave our grounds. This short chapter must suffice for last year's history; it offered the usual allotment of sorrow and gladness, of work and pleasure, and we see it join its fellows of the past with a feeling of satisfaction and no regret.

As devoid as the last fiscal year appeared of striking incidents, it certainly carried off the palm in our administrative department by putting us in possession of ideal fire escapes and an electric plant that must prove its ideality in the near future. Before this, the two wings of the main building were provided with inclosed iron stairways lined with fireproof walls. In case of a fire in the basement these stairways would prove impassable in a very short time through the volumes of smoke that would refuse to escape by way of the small window openings. Experienced fire-fighters assert that at every fire with fatalities, victims of suffocation predominate over those of incineration. Our two new circular fire escapes are placed in the rear of the building and connect with the attendants' rooms on either side by means of a securely screened and covered bridge. The absence of stairways, with ever-present dangers of panicky crush, and their substitution by gently unwinding spirals that do not permit any individual choice to whoever is in their grasp, have added immeasurably to our feeling of security in case of an emergency. While I cannot assert that our patients expressed actual delight at their trial trips down the circular escapes, no serious objections were raised. What with the radical change of our cold water supply system, and removal of standpipes and hose-racks from inaccessible clothes-rooms, covering of all heat-irradiating surfaces with a view of economy and fire protection, erection of fire-plugs connected with eight-inch city mains in close proximity to the buildings, the prospective introduction of a fire-proof metallic dry-room, in the laundry, the employment of two stationary professional firemen for constant inspection of the premises and fire apparatus, including two large hose-reels for first aid, the risks from fire have been greatly minimized. The fact that the inspector of the bureau of fire prevention at his last visit found everything in good shape except for some accumulated lint in the dry-room, speaks fairly well for the system inaugurated. I have since instructed the firemen to supervise, personally, the daily cleaning of the laundry.

The installation of our electric plant ranks next in importance in the line of permanent improvements. In a letter dated July 13, 1896, and addressed to the health commissioner, I said: "The contracts for city lighting expire in 1900, and I believe that this is a good opportunity for urging the erection of an electric plant on the asylum grounds which would supply the three institutions, representing in the aggregate a population of about 2,100 heads, that is a population of a good-sized township, with the necessary lighting." Here follow statements as to comparative cost and estimates for the original investment and current expenses, and as to advantages of ownership of the plant. This communication appears *in toto* in our twenty-eighth annual report, and the only additional comment made is as follows: "This scheme is perfectly feasible and should be acted upon at once as the plant should be ready for operation on the first of January, 1900." These suggestions died "a-borning," and January 1, 1900, will go down in the history of our public institutions as their Black Friday.



Events, fresh in every one's memory, and since deservedly pilloried, led to a reign of almost absolute darkness through supplanting the modern electric bulb by the candlestick of our forebears. I am free to admit that this course was not tolerated at this institution; the management flatly refused to shoulder the responsibility of exposing hundreds of more or less helpless unfortunates to the dangers of a terrible conflagration lurking behind every candle placed in the overflowing wards. Private resources were called upon to defray the expense of five weeks' lighting, and long before the expiration of this memorable interregnum, unknown benefactors had made the use of candles unnecessary at our sister institutions. At this critical time another circular letter was set adrift pleading for the establishment of our plant. The heaven began to work slowly and gradually, and today we are on the eve of the opening of the institution plant. I only hope that our newly installed boilers will furnish sufficient power during the winter months for pumping, heating and lighting. Should a marked deficiency make itself felt, we shall find it necessary to revert to the plan originally suggested by me, in pursuance of which additional boiler room could be secured on the plat of ground east of our monumental smokestack. The possession of the plant as a matter of course suggests the eventual introduction of electro motors and electric irons in the laundry; the employment of the latter would relegate the present laundry stove, that bug-bear of the underwriter, to the oblivion of the junk pile. In keeping with these changes we must enlarge our machine shops and coal sheds, and insist on the contractor putting in a plentiful supply of storage coal. A telephone will have to be placed in the shops for the engineer's use, and a portable voltmeter purchased for testing the voltage in any part of the building. Two dynamo tenders and coal passers as well as an electrician, must be added to our regular force.

When we mention the erection of a new kitchen as airy as its location will permit, of refrigerators, one of which is for the milk supply, of a roomy glass porch for the cottages, of green-houses, of an open-air pavilion, we have probably enumerated all improvements easy of ocular demonstration. But the taxpayers' money has not been idle in other directions: extensive plastering, inside and outdoor painting, new flooring, thorough overhauling of roofs, ceilings, windows and doors, considerable plumbing and steam-fitting, and many other minor repairs and alterations, have unquestionably tended to bring the property to a state of good physical condition. After my recommendations for the repair of the front steps and the dome stairway will have been acted upon, there will not be found in the entire building a single nook showing decay or neglect. For every dollar expended full return has been made in demonstrable improvements. It is not quite so easy to give within the scope of such report a satisfactory accounting of the running expenses of this hospital: here we must rely upon lifeless figures, and chiefly on a statement of the per capita cost of maintenance. In the following table I include in computing the rate of maintenance all expenses for each year except those incurred for special repairs and improvements—this is done in accordance with the usage prevailing at all institutions of this character, and for just comparison with the latter:



|                 | Daily Average of Patients. | Gross Cost Per Capita. |         |
|-----------------|----------------------------|------------------------|---------|
|                 |                            | Annual.                | Weekly. |
| For 1895-6..... | 380                        | \$204.83               | \$3.94  |
| For 1896-7..... | 446                        | 190.56                 | 3.66    |
| For 1897-8..... | 516                        | 177.00                 | 3.40    |
| For 1898-9..... | 554                        | 162.63                 | 3.13    |
| For 1899-0..... | 631                        | 173.07                 | 3.33    |
| For 1900-1..... | 660                        | 160.31                 | 3.09    |
| For 1901-2..... | 676                        | 166.13                 | 3.19    |
| For 1902-3..... | 681                        | 168.88                 | 3.24    |

The low daily average will fully explain the higher cost in the first few years. Let us take as an example the two extremes, with an increase of 301 in the daily average of patients in the last year: while the requirements for actual sustenance have almost doubled, the administrative expenses have changed but slightly, and entirely out of proportion with the increase of number of patients. Thus we find the salaries of 1903 increased only by \$2,400 over 1896, and the two repair funds represented by approximately the same figure. If we take the financial statements incorporated in our last eight annual reports, and compare them item for item, certain fluctuations can be noticed, which in my opinion lend themselves readily to explanation. The slight increase in the consumption of bread is to be accounted for by weekly additions of bread-pudding to the patient's diet. The daily quantity of meat, either beef or mutton, after deduction of all waste in the dressing is computed at eight ounces for the individual, surely not too large an amount, considering the usual absence of other nitrogenous food. The consumption of provisions classified as groceries has kept pace with the growth of our population. The amounts expended for vegetables appear to vary in keeping with the yields of our own garden; for example, during the fiscal year 1901-02, with its well-remembered drouth and killing heat, we were almost exclusively dependent on outside sources for our vegetable supply. Some fresh winter vegetables have also been added to the patients' regular diet. The expenditures for milk vary greatly in the different years, having been reduced considerably within the last three years on account of the reintroduction of the tea and coffee in the diet list, called for partly by reasons of enforced economy, partly by constant murmurings of our boarders. As highly as I value milk as an article of hospital diet, I most strenuously object to the erection of a municipal dairy without ample provision for pasturing, as feeding silage to cattle the year round is every whit as objectionable as feeding to them brewery slops. The quantity of ice used stands in direct proportion to the length and intensity of the warm season. A full supply of this article in our refrigerators has made an occasional rejection of tainted food a story of the remote past, and an unbroken offer of a cooling drink in the shape of ice-water has passed the stage of luxury in this valley of tropical summers. In our inquiries into the differences of expenditures we must not overlook the wide fluctuations of prices even in staples, and the varying care bestowed at different periods on the process of buying. Something may be said in behalf of possibilities of considerable saving in the hands of an economic culinary department. I should be guilty of an exaggeration, at least, if I asserted that all of our cooks were past masters in the art of



economy. While we have had and have now good cooks, with sufficient practical experience for the work in hand, none of them possesses the requisite knowledge to carry out the precepts of scientific cooking. As I never attempt the impossible nor pretend to do what lies beyond my ken, I do not claim to be able to apportion to our patients their foodstuff in strict accordance with physiologico-chemical science. But the interested observer would soon learn that the food offered our denizens embodies, in quality and quantity, all life sustaining essentials, and a still closer inspection would lead to the conviction that the diet list encourages neither starvation nor gluttony. Unfortunately, a certain sameness is unavoidable in providing for such a large mass of inmates, but how about our own table or that of the average boarding-house? To provide properly for the manifold needs of the institution in all of its branches the incoming supplies received unceasing and careful attention at this end, being minutely scrutinized as to quantity and quality. This part of our administrative work would have proved to me a constant source of apprehension and anxiety had I not had at my side Mr. R. E. Lee Gibson, whom I received as a heritage from two preceding administrations, and who has honestly, efficiently and faithfully discharged the manifold duties of a chief clerk and steward. May he long continue in the service for the benefit of this department and the tax-paying citizen!

In conclusion of this chapter I will adduce a few data culled from the last annual report of a large hospital for the insane located in the State of New York, where the financial affairs of all the hospitals are under the absolute control of a central body—*i. e.*, the State Commission in Lunacy:

Total acreage of grounds and buildings, 1060 (our, 29); acreage under cultivation, 565 (our, 15); daily average of patients, 1382 (our, 681); annual cost per capita, \$175.06 (our, \$168.88); weekly cost per capita, \$3.32 (our, \$3.24); proportion of attendants to patients, 1 to 9.5 (our, 1 to 20); revenue from pay patients, \$2,852.97 (our, \$7,528.08).

Its farm is stocked with: 29 horses, 119 cows, 49 heifers, 29 sheep, 117 pigs, 394 fowls, 493 chickens, 126 ducks, etc. (Ours, none of these except six condemned horses.) Considering the utter lack of advantages and facilities expressed or implied in these New York data, at our home institution the latter sins manifestly more on the side of economy than extravagance. I may say a few words regarding our pay patients. It must not be understood that this class of patients receives special accommodations and treatment, for our hospital is not prepared to furnish either. With us a pay patient is simply one whose estate or relatives are able to defray either entirely or partially the expense incurred by the municipality for his maintenance. I have repeatedly scanned the roster of our patients with a view to inquiring into the financial status of their respective relatives. It so happened in a number of instances that cases under suspicion turned out to be such as had passed the scrutiny of the Board of Health, showing sworn affidavits as to utter financial disability. At times appearances of the relatives will move me to direct questioning, most frequently with the result of establishing the existence of a large dependent family and usually a marked addition to the expense account due to the withdrawal of the wage-earner or the necessity of substituting paid help for an incapacitated mother. I have suggested in the past having doubtful cases submitted for investigation to the City Collector's office, which is best prepared to pass judgment on the extent of financial ability or disability of a citizen who applies to the municipality for aid.



In the following I submit my financial recommendations for the ensuing fiscal year, of which every item is the outcome of most careful deliberation :

#### GENERAL APPROPRIATIONS.

|                                                    |              |
|----------------------------------------------------|--------------|
| For salaries.....                                  | \$36,000.00  |
| For groceries.....                                 | 60,000.00    |
| For drugs.....                                     | 1,500.00     |
| For dry goods.....                                 | 10,300.00    |
| For forage.....                                    | 2,500.00     |
| For labor material.....                            | 1,000.00     |
| For labor repairs.....                             | 2,000.00     |
| For entertainments.....                            | 600.00       |
| For traveling expenses, attending conventions..... | 150.00       |
| Total.....                                         | \$114,050.00 |

#### SPECIAL APPROPRIATIONS.

For one new hot-water heater of large capacity and boilers; one complete new hot-water circulating system for the entire building; new additions to coal sheds, including new blacksmith shop and electrical repair shop; dynamo and engine supplies for the year; new steam and return pipes to radiators to male and female bath-rooms; new steam and return pipes and radiators in rear building; one new metallic laundry dry-room; repairs to old laundry wringer and washing machines; five new laundry clothes trucks; the laundry to have new set-in washing-tubs; connecting the two west cisterns with city water supply and putting in six-inch suction pipe to tank pumps in engine-room; two new kitchen ranges; repairs to laundry engine; new iron beam supports and area way around kitchen and engine-room to be repaired; plastering throughout main building, basement, laundry, kitchen, engine-room and tunnel; repair roof, valleys and down-spouting on rear building, stable, storehouse and cottages, new fence around stable; woodwork and screening to be renewed on food elevators; new stairway up to dome; cottages, gravel roof on decks to be renewed; new greenhouse; whitewash engine-room, boiler-room and carpenter-shop; new wire window screens for eighth, ninth and fourth halls; new wire pipe guard screens for eighth hall; put front stone steps in first-class condition; shingle roof on paint-shop, gardener's house and carpenter's house; screens, new floors and new stalls in stable; one hundred new iron bedsteads; trees and shrubs; painting all wood-work on dome and cornices, roof, window openings and iron bars:

For all of the above .....\$15,965.00

Before the final closing I may be permitted to acknowledge my appreciation of the services rendered to this department by our assistant superintendent, Dr. Theodore Greiner, who has expressed his intention of entering in the near future upon the practice of his profession. The four years of his collaboration with me have been marked by conscientious, highly intelligent service and by pleasant relations with me. Our best wishes will follow him in his new field of labor.

Seven years have passed since I closed my annual report in a manner considered utterly at variance with common usage. Upon safe arrival at another mile-stone I would be delinquent in discharging a simple duty if I did not again and publicly express to my wife on the part of this department and myself words of heart-felt appreciation for her efforts volunteered in the service of pure humanity, for which she reaps daily reward in the love and gratitude of the beneficiaries of such efforts.



## ASTEREOGNOSIS IN A CASE OF TABES.

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The following is an interesting instance of tabes in which the degeneration process had so selected or differentiated the systems of sensory fibers that the temperature sense and pain sense were preserved, practically, throughout the body, while other kinds of sensibility, *i. e.*, tactile, pressure, muscular, localizing, spacing and posture sensibility were co-extensively defective, being in some instances entirely and in others partially lost. Hence in all the members of this patient's body there was an astereognosis, or a loss of the complex sensibility, by which the shape and size and solid properties of impinging objects are determined.

I shall first present the evidence of astereognosis in the case, and then briefly sketch the other features, establishing the diagnosis of locomotor ataxia. When his eyes were closed and various objects, for example, a key, a silver dollar, a peach, etc., were placed in his hand he was not aware of their presence unless they happened to be so cool or so warm that he could detect a temperature change. When told that there was some object in his hand, his manipulation of it in attempting to discover its properties was so excessively awkward and labored as to show that he had no sense of its size and shape. His hands were about equally involved in this defect, and he was allowed to use them together in these blindfolded investigations. Their movements were so hesitating and inco-ordinate as to be quite grotesque, the objects frequently slipping from his grasp and falling to the floor. Some incidents of the examination will help to further convey an idea of the sensory condition. He manipulated for quite a while a hair brush, becoming very much interested in it. The bristles, being stiff, occasionally pricked him beneath the finger-nails, but he could not discover what it was.

As we were preparing for the second examination he remarked that his wife had informed him that during our first examination, some two weeks previously, he had let a silver dollar escape from his grasp; and he went on further to say, jokingly, that it was not his nature to let that kind of chances slip, and that he would not be accountable for any more dollars placed in his palms. I think he had an idea that he would be able to detect the dollar piece on another trial. He failed to do so, however, although I gave him every opportunity excepting the aid of vision and hearing to discover it.

A peach was placed in his hand. He was not conscious of its presence there. When told to close his hand upon it he did so quite forcibly, which resulted in a rupture of the peach, causing some one present to exclaim suddenly. He relaxed his grasp quickly, anxiously inquiring, "Was it a watch?" fearing he had injured some valuable article.

As to the diagnosis of tabes there was no question. When I first examined him he saw with his left eye at ordinary distances all the articles used in our tests. At our second visit, two weeks later, vision had failed so rapidly that it was hardly necessary to cover the eyes. The ophthalmoscopic diagnosis was optic atrophy. Within a few weeks he was totally blind.

On my first visit I found the pupils sluggish, but reacting to both light and



accommodation. Station was very poor (*i. e.*, a pronounced Rombergism was present). The knee-jerks, and the wrist-jerks as well, were absent. The plantar reflex was very lively on both sides. Locomotion was characteristically tabetic. The inco-ordination of the upper extremities was not so pronounced as that of the lower, but was very great. Putting on his shoes, buttoning his clothing, etc., was so difficult that some one performed these offices for him.

Tactile sense was poor everywhere, *e. g.*, he could not recognize two points, dull or sharp, one-half inch apart, on any of his finger-tips. The localizing sense was equally defective in all his members. The pressure sense was so poor in the hands and arms that the pressure had to be quite firm and sustained to enable him to detect differences. On the middle of his back heavy pressure was not recognized as he lay face down in bed. On the muscles of his thighs it was possible to make deep indentation with the handle of the percussion hammer before he became aware of any pressure.

The pain and temperature sense were both acute over all portions of the trunk and extremities, in some places apparently hyperacute.

The development of the symptoms had been very rapid. Our first examination was made August 27, 1902. Just eight months prior to that time he noticed a slight paresthesia on the antero-external surface of the right thigh, which he attributed to horse-back riding in the cold. This was quite transient at first, but finally invaded the other thigh and became constant in both of them. It was never intense; never actually painful. Later he noticed the same paresthesia on the right side of the trunk, and this finally grew into a girdle or "sinch" feeling. Within the last two months (at the time of our examination) all of these paresthesiæ had departed save in an area 6 by 8 inches on the right side of the abdomen. This area was hypersensitive to pain and temperature. He had had no actual tabetic pains nor crises of any kind.

There seemed to be no paralytic feature in his locomotion; once started he could walk a great distance without fatigue. The bladder was somewhat slow but had never leaked; concerning this he was very positive. His grip was powerful, although it was difficult for him to co-ordinate well enough to show its full force.

There were no cerebral symptoms. He has never had any headache, nor vertigo, nor tinnitus. Excepting the optics there was no suspicion of disturbances of any of the cranial nerves (not even the fifth). Mentally he was perfectly alert and as good as he ever was, according to his and his wife's statements. To us he certainly seemed to be a man of unusual "nerve." He was thirty-six years of age; a captain in the regular army. There was a history of lues, contracted only four years previously. He had not received much anti-syphilitic treatment.

The question might pertinently be raised in this remarkable case whether the patient had tabes or an extensive syphilitic spinal meningitis. The presence of the marked dissociate sensory symptoms, *i. e.*, the complete preservation of certain sensory tracts with the total destruction of others, answer it in favor of tabes, or a degeneration of a selective or system kind beginning within the cord.

These notes were largely prepared a year ago with the purpose of publishing them, but neglected until now. Since then several cases of astereognosis in tabetic cases have been reported. The writer has seen several instances during this time in which in tabetics to a less degree than in the case here reported the



phenomenon was present; and very recently a case, observed also by Dr. H. Hermann, of this city, where it was present in the right hand of the patient. This was a case which began as spastic paraplegia and afterwards developed ascending sensory symptoms evidently due to ascending degenerations of the posterior columns, the final picture being that of the "Erb type" of lateral sclerosis.

For the opportunity of observing this case I am under obligations to Dr. Samuel A. Peake, who studied it with me.

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## OCULAR EXAMINATION AS AN AID TO THE EARLY DIAGNOSIS OF MULTIPLE SCLEROSIS, WITH REPORT OF A CASE.

BY JOHN GREEN, JR., M. D., and SIDNEY I. SCHWAB, M. D., of St. Louis, Mo.

In the diagnosis of nervous diseases of a complex nature there is a constantly growing tendency toward the more careful study of initial symptoms. This tendency does not concern itself so much with the mere enumeration or grouping of them as it does with the attempt to correlate a few definite symptoms which may be widely different in clinical characteristics and in anatomical localization.

It was formerly thought sufficient to group a number of classic symptoms together in order that a clinical entity should be constituted. This formed, so to speak, an ideal clinical picture, to which a certain given disease must conform in order to be diagnosed as such. If a majority of these signs were present, the disease could be included as coming under this or that category; if less than a majority, the case was to be regarded as suspicious; and if only one or two were found, the diagnosis was in doubt. In this way has come about a method of diagnosis very much in vogue in certain text-books; it might be called the "Text-Book Method of Diagnosis" with its grouping of symptoms according to number and with its arbitrary dividing line between what is definite and what is undetermined. With the increase of our knowledge has come a curious condition, which bids fair to lead to considerable confusion unless our conception of disease grows broader with its increase in knowledge of the underlying causes of disease. An illustration of this condition can be seen in the numerous cases without the presence of classical symptoms which are published. In some instances the symptom which has given to the disease its name is no longer thought to be necessary for the diagnosis of the disease; for example, exophthalmic goitre without the exophthalmus or the goitre, Parkinson's disease without the tremor, locomotor ataxia without the ataxia, etc. In no disease of the nervous system perhaps is this tendency more in evidence than that of multiple sclerosis, called by Charcot "*L'Affection Polymorphe Par Excellence*." The intention tremor, nystagmus, scanning speech, which are in many minds typical of this disease and only of this, and which mean practically this disease, are not at present regarded by neurologists as essential for the diagnosis. It must be admitted that many symptoms formerly thought to be absolutely typical are in the very nature of things purely accidental, depending upon the localization of the morbid process and upon the reaction of the tissue to it. The determining causes are not altogether understood. In multiple sclerosis there is, from an anatomical point of view, a large expanse of nerve tissue susceptible of being the seat of the numerous or sparsely scattered patches of sclerosis. The exact nature of this

sclerotic process is not known, and what we do know of its microscopical character gives very little ground for the resulting symptoms. This much, however, is certain—the spinal cord responds in characteristic motor symptoms of a non-degenerative type, while the brain and cranial nerves, especially the optic, respond in terms of disturbed function, complex or not, according to the location of the sclerotic patch. It is this location on the optic nerve which makes it possible to diagnosis multiple sclerosis by the presence of one or two spinal symptoms, not characteristic of any one disease, and by the presence of a group of ocular symptoms which, owing to the specialized nature of the optic nerve, are more in the nature of specific symptoms. The following case illustrates the points here brought out and emphasizes the necessity of a careful eye examination in all cases where the diagnosis is in doubt. As the chief interest of the case, outside of the diagnosis, lies in the eye findings, the clinical history and physical examination will be given very briefly.

Mr. F., age thirty, laundryman by trade, unmarried, of excellent habits, with no venereal history, was sent to me by his family physician. His chief complaint is stiffness of the right leg with some difficulty in walking. With the exception of pneumonia early in life, there is no important previous sickness. About three years ago the patient first noticed that his right leg was stiff and awkward. This apparently disappeared, leaving only a certain degree of weakness behind. After a period of remission extending over six months, the patient noticed a return of his former symptoms, which at this time involved the left leg in addition. A slight uncertainty of gait was the result of this extension of his symptoms; this annoyed the patient very much, especially so in his daily work, which had to do with getting on and off of a delivery wagon, mounting stairs, and carrying bundles. After a month or so there was again marked improvement, so much so in fact that the patient considered his trouble had disappeared. About one year ago the wagon which the patient was driving, was run into by an electric car. The resulting shock threw him to the ground without, however, producing any noteworthy injuries. There was, however, considerable mental shock. After the accident the old symptoms returned, but more severe in character, and to the accident the patient attributes the reappearance of his present symptoms. The chief complaints at present are weakness and stiffness in both legs, more marked on the right side. Physical examination: internal organs negative; urine normal. Gait: a very marked spastic parietic gait, more pronounced in the right leg than in the left. The right leg is carried stiffly and dragged along the ground. There is a very slight intention tremor in the finer movements of the right arm and hand. This tremor varies from time to time and is different at almost every examination, at times being hardly perceptible and at others so marked that there is no doubt of its existence. There are absolutely no disturbances of sensibility. Many and careful tests were made before this negative result was reached. No astereognosis and no disturbance in the muscular sense. Reflexes: the knee-jerks are pathologically increased in both legs. The slightest tap at or in the neighborhood of the patellar tendon produces marked excursion of the leg; the right leg shows this more pronounced than the left. The Achilles jerk is markedly exaggerated; ankle clonus present on both sides. The Babinski reflex is absent, though repeatedly sought for. The cremasteric reflex is increased on both sides. There was no scanning speech nor any speech defect, no nystagmus, no mental symptoms of



any sort. The enunciation is slightly nasal but otherwise normal. There were then present in this case a group of symptoms pointing to a profound disturbance of the motor system in the spinal cord, especially in the pyramidal tract. The diagnosis from these data could only be tentative. Attention was drawn to the eyes for two reasons, first as a matter of routine examination in cases of this character, and secondly because the patient had complained of some difficulty in seeing objects at a distance. As will be seen, the data obtained from the ophthalmological examination solved the problem completely.

Generally speaking, the ocular structures do not participate, either clinically or pathologically, in the picture of multiple sclerosis before the disease is well established. Occasionally, however, as Swanzy (1) and others have pointed out, characteristic defects of vision and ophthalmoscopic appearances may precede other symptoms by months, or even years. Ocular examination, therefore, may lead one to suspect a beginning multiple sclerosis long before the disease can be positively diagnosticated. Thus Craig (2) observed a unilateral optic atrophy in a nine-year-old boy, who in his twelfth year developed nystagmus, intention tremor, prolonged scanning speech and spasticity of the lower extremities. In thirty-eight undoubted cases of multiple sclerosis, Bruns (3) noted that in fourteen the first symptoms was ocular. Furthermore, exact observation and correct interpretation of the ocular signs will often aid greatly in establishing a differential diagnosis between the early stage of multiple sclerosis and certain types of hysteria. Allusion will be made to this point later.

The ocular symptoms include defective vision, concentric and irregular contraction of the visual and color fields, color, and rarely absolute scotomata changes in the appearance of the optic disk, and disturbances of the ocular and orbital muscles. These symptoms usually develop suddenly, though occasionally their appearance is gradual, and they may affect one or both eyes. They vary greatly in degree, often disappear entirely for a time, but eventually reappear. This "symptom-fickleness" is especially characteristic.

The visual defect is not, as a rule, very great. Vision may be totally in abeyance for a time, but permanent, complete amaurosis is rare. Varese (4), however, observed a case of multiple sclerosis in which a bilateral optic neuritis terminated in complete atrophy and blindness. Not infrequently there is a striking incongruity between the visual defect and the ophthalmoscopic appearance, and as Bruns and Stoelting (5) have noted, the greatest diminution of vision and contraction of the field may obtain in the eye whose disk is, ophthalmoscopically, the least affected.

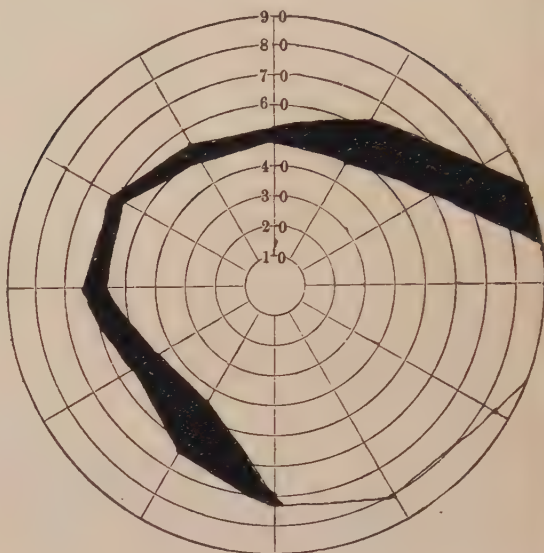
The alterations of the visual and color fields are very varied. The visual field may be either concentrically or irregularly contracted, with or without the presence of a central scotoma. The latter is usually relative, although transitory absolute scotoma has been observed by De Bono (6) in a case of papillitis with temporary amaurosis. Occasionally the color fields are narrowed, this condition often being accompanied by central color scotoma. Sometimes the fields are dissimilar in the two eyes. In three cases of optic atrophy occurring in the course of multiple sclerosis, Leitner (7) observed in the first, concentric color contraction; in the second, peripheral contraction without central scotoma; in the third, central scotoma with normal peripheral fields in one eye and color contraction in the other. It is important to note that extensive destruction of

## VISUAL FIELDS.

LEFT.



RIGHT.



## FIELDS FOR BLUE.

LEFT.



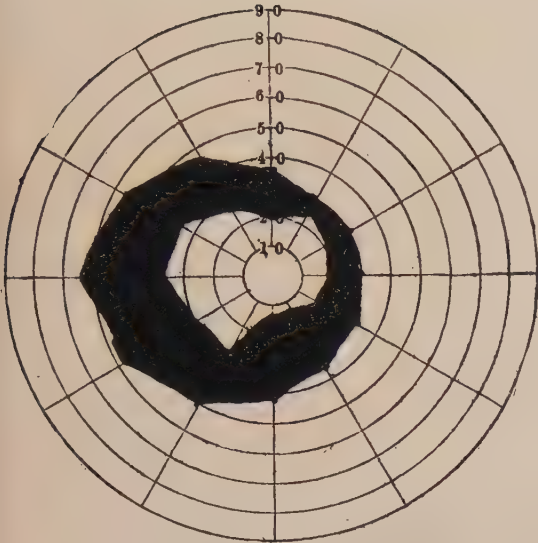
RIGHT.





FIELDS FOR GREEN.

LEFT.



RIGHT.

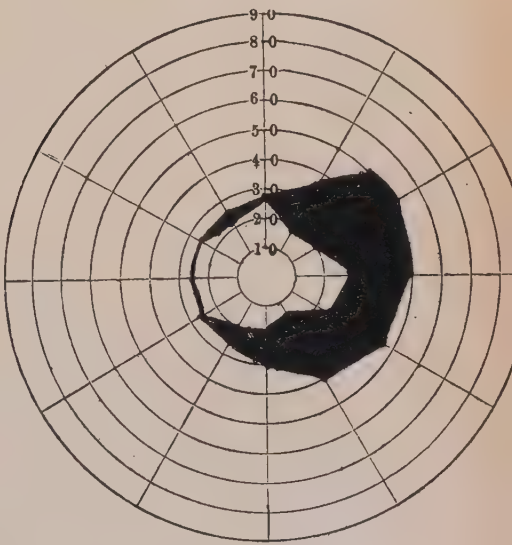


FIELDS FOR RED.

LEFT.



RIGHT.



sight and notable defects in the visual and color fields may obtain without change in the appearance of the disk.

The ophthalmoscope reveals changes in the papilla in about one-half of all cases of multiple sclerosis. The most frequent appearance is a moderate grayish discoloration of the entire disk. Temporal atrophy, the nasal half of the papilla retaining its normal appearance, gives an ophthalmoscopic picture closely resembling that of toxic amblyopia, and is often found. Luebbers (8) in an examination of eleven cases of multiple sclerosis with eye changes, noted complete but moderate atrophy of the entire disk in six, and in five temporal atrophy only. Slight transient neuritis has been observed by Uhthoff (9) and Buzzard (10), who are of the opinion that the condition is often overlooked. De Bono (6) reports an interesting case in which a severe neuroretinitis preceded by six weeks any other symptom of the disease. Bruns and Stoelting (5) believe that the nerve trouble begins with an interstitial neuritis which may terminate either in complete restoration of the disk, or in diffuse or temporal atrophy. The inflammation may be strictly retrobulbar, in which case the ophthalmoscopic findings are negative. Hemianopsia has never been observed. The neuritis is presumably caused by sclerotizing foci immediately behind the disk.

Of the various oculo-motor derangements, those of unquestioned nuclear origin are defects of the conjugate motions to the right or left and paresis of the power of convergence (Swanzy) (1). Limitation of conjugate motion to the left was noted by Nagel (11) in the early stages of the disease. Unilateral abducens paralysis, as noted by Frank (12) and Gutmann (13), and partial paralysis of the motor oculi, are peripheral in origin. Bilateral paresis of both abducentes (Schuster and Bielschowsky) (14) are probably of nuclear origin. Kunn (15) observed the development of true convergent squint—*i. e.*, without paralysis.

Nystagmus, which is present in about one-half of all cases, is divided by Kunn (15) into (*a*) true nystagmus and (*b*) nystagmic twitchings, manifest only when the eyes are turned to extreme positions. Under the term "fixation trembling" Kunn (15) describes a phenomenon observed only at the moment of fixing an object. The visual axes converge momentarily to a point a little in front of the object, then immediately to a point a little beyond the object, and, finally, after two or three oscillations converge accurately at the desired point.

The state of the pupils is usually normal, though Uhthoff (9) noted slight abnormalities in sixteen per cent. of his cases. According to Hoffmann (16) disturbances of the pupil are rare and are not typical of multiple sclerosis. Difference in the size of the two pupils has been noted by Probst (17). Damsch (18) observed hippus as the only demonstrable cerebral lesion in two cases. Reflex rigidity and impaired light and convergence reaction are occasionally met with. In some cases with normal visual acuity Kunn (15) observed a blurring and dancing of letters and lines which he ascribes to trembling of the ciliary muscle.

In the differential diagnosis between multiple sclerosis and hysteria the ocular symptoms will often give important aid. Changes in the optic papilla with transitory central scotoma, recession of the color fields in *their physiological order*, and the presence of nystagmus and paralyzes, speak for multiple sclerosis. On the other hand, a normal disk, contracted fields without central scotoma, irregular and erratic contraction of the color fields, and the absence of oculo-motor disturbances would all tend to corroborate a diagnosis of hysteria.



The patient, Mr. F., was referred July 26th, 1903, for examination of the eyes. The refraction, estimated without cycloplegia, proved to be a compound myopic astigmatism as follows:

|              |        |         |         |
|--------------|--------|---------|---------|
| O. D. M 1.25 | Am 1.5 | Mc 100° | V 16-15 |
| O. D. M 1.5  | Am 1.5 | Mc 90°  | V 16-15 |

The excursions of the globes were unrestricted in all directions. Nystagmus and "nystagmic twitchings" absent. An examination of the muscular balance showed orthophoria. The pupils were equal and reacted rather sluggishly to light.

Ophthalmoscopically, the right papilla exhibited a rather dirty grayish white discoloration in its temporal half, the nasal portion being somewhat hyperemic with blurred margins. In the upper outer portion of the atrophic temporal half was a round, dark gray spot, in size about one-fifth the diameter of the disk, set off from the grayish white background. The left papilla was very hyperemic with indistinct margins. No swelling could be detected. The visual fields (see diagrams) showed a slight concentric contraction, more marked in the right eye. The fields for blue, green and red have suffered a notable concentric contraction, especially conspicuous in the temporal half of each field. As will be seen from the diagrams, the colar contraction was rather greater in the right eye. Central vision for colors was normal.

The hyperemia of the left disk is probably the expression of a low-grade neuritis. In the right eye the appearance of the nerve-head is that of a typical partial atrophy. These signs, in conjunction with the contracted visual and color fields, furnish data of considerable importance in establishing a positive diagnosis of multiple sclerosis. Such a diagnosis is justified when there are present symptoms pointing to an involvement of spinal cord structure sufficiently pronounced so that spasticity with increased deep reflexes and clonus are produced together with ocular symptoms and eye ground changes which can be assumed to be dependent upon the same process which is present in the cord.

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## THE REFLEXOGRAPH AND ITS USES—BEING AN APPARATUS TO AUTOMATICALLY MEASURE, TIME AND CHART THE KNEE-JERKS, AND FOR OTHER PURPOSES.

BY J. M. BRADLEY, M. D., of St. Louis, Missouri.

It has long been evident to the author, and probably to every one else who has had much to do with neurology, that the ordinary way of testing the reflexes is crude and unscientific, allowing too much opportunity for error, having nothing of precision, and being altogether a very arbitrary method of making an estimate of the qualities of the reflex.

The usual mode of testing—striking either with a hammer or the fingers, and watching the excursion of the foot—gives results pretty much as the operator wills, and the question of personal equation enters so largely into the judgment of the reflex obtained, that, witnessed by two or three persons, there will be a variance of opinion entirely too wide. For instance, a knee-jerk is tested in the presence of three or four physicians; among those present it is usual to find one whose personality or character or attainments make him looked up to by the rest, possibly because of his greater knowledge of the subject in hand. So he has the patient sit with legs crossed, and proceeds to tap with his finger-tips first one quadriceps tendon, then the other, and announces that the reflexes are increased, and in the majority of cases the other physicians present will say: "Yes, they are increased," not because they really think so, but because Dr. So-and-So says so, and he knows. But if the doctor, instead of announcing his opinion, writes on a slip of paper whether he thinks it increased or normal, and invites each of the others to do likewise, when the slips are compared there will be a decided difference of opinion as to whether there is an increase. Of course, this would not be so in extreme cases, like in the spastic jerk of hemiplegia or the absence of response in tabes, but in cases where there is a moderate increase or decrease. Now, this difference of opinion is the personal equation; each man is honest in his judgment; Dr. A. thinks it is increased; Dr. B. thinks it is



normal, simply because there is no standard, nothing to guide him, no acknowledged normal knee-jerk. For this reason of uncertainty the author conceived the idea of testing a large number of cases of all kinds, obtained under practically the same circumstances, to get an idea of what should be considered normal. To make these tests of any value, therefore, the factor of personal equation must be eliminated, for it would not be proper to arbitrarily pronounce this man's reflexes decreased, and that one's normal. To eliminate the factor of personal equation, then, the reflex must be recorded by an unthinking machine, which would not be prejudiced in any way, and would unfailingly record the condition of the knee-jerk and make a written record of same, regardless of what the operator's opinion of that knee-jerk might be. This record being an exact tracing, would not be subject to the factor of personal equation, for if the record should show that the knee jerk, when tried by means of the reflexograph, had an excursion of, say, two inches, and that by means of experiment we had found an approximately normal reflex to be five inches, then no amount of error of judgment or lack of keenness of perception would prompt one to say that the two-inch reflex was not decreased. Of course, this is only an instance, as the two-inch reflex may occur in an apparently normal individual, so also may the reflex which has an excursion of more than five inches. But I do not believe that the range of excursion is as great in normal individuals as is generally supposed, being probably within two inches on either side of five.

Those that exceed that, either way, are probably abnormal, and in most cases the cause can be found if diligently sought. In a previous paper (*Medical Bulletin, Washington University, January, 1903*) the author, in a series of over three hundred cases of non-organic nervous cases, attempted to show that the knee-jerks were decreased by the excessive use of coffee; but these reflexes, while manifestly decreased, were what would ordinarily be considered normal—that is, the knee-jerk was there, was not spastic, and the patient had no organic nervous affliction. These cases proved that in those who were not addicted to coffee, or only moderately, that 52½ per cent. were normal, 10 per cent. decreased and 37½ per cent. increased; while in those who used coffee excessively (say three cups or more per day), the figures were reversed: normal, 37 per cent.; decreased, 40 per cent.; increased, 23 per cent. So, on the basis of coffee intoxication, many reflexes that would fall two inches below the arbitrarily fixed standard of five inches, might be justly considered abnormal, though not usually now so construed. In like manner there is, in all probability, toxins generated in the body, possibly having an action analogous to that of strychnine, which would account for many of the reflexes that have an excursion of more than two inches greater than the arbitrarily fixed standard of five inches. Such knee-jerks frequently found in a certain class of neurasthenics are now classed as normal, but are really exaggerated and should be classed as abnormal. From this, then, it will be evident that if we could establish a normal range of excursion to judge by, it would be something gained, and this can be done with comparative ease by means of the reflexograph.

But the range of excursion in the knee-jerk is by no means the only thing, nor even the most important factor, in judging the condition of the patient. For there are many features about the knee-jerk besides mere increase or decrease, and the sum of all these features must be taken into consideration when examining any given case. The range of excursion may be normal, but with

certain other characteristics that would infallibly cause a knee-jerk to be classed as abnormal; for instance, spasticity, which may be estimated very accurately by the relation which the time taken at the base line bears to the height of the curve as traced by the reflexograph. The knee-jerks, as portrayed by charts, form triangular figures of varying dimensions. One side being formed by the ascending line, and one by the descending line, the third by an imaginary line at the base, which we may designate, for convenience, as the base line. By variations in the lengths and contours of these lines as made by the charting apparatus, a very great difference is made in the charts of knee-jerks of different conditions and diseases. For instance, in one of the charts here shown (Chart No. XIII), measuring five inches from base to apex, the time required was only one-half second, making a very sharp-pointed triangle. Here the excursion of the foot is just about what might be considered normal, but judged by the short base line connecting the two perpendiculars, and indicating the time, it shows at once the characteristics of the spastic-jerk, spastic but not exaggerated.

I believe it is commonly the case that the words "spastic" and "exaggerated" are used synonymously, but that such should not be done may be illustrated by some of the charts here shown. A knee-jerk may be both spastic and exaggerated, or it may be either exaggerated or spastic; it may be spastic and not only not exaggerated, but positively diminished; and, of course, it may be simply exaggerated, but not spastic.

As there are two extremes in distance traversed by the foot in testing the knee-jerks, represented by the diminished and exaggerated, so also in time there are two extremes, fast and slow, the spastic representing the fast knee-jerk, and the choreic representing the slow knee-jerk, with all grades between.

One of the objects the author had in view when making the apparatus was to establish a normal knee-jerk, to be taken as a basis for judging the reflex, to establish a standard (if possible) in regard to length of curve and the time necessary for a complete reflex, which can only be done by charting a large number of knee-jerks from normal individuals, who are not addicted to the use of coffee or other drugs; for, as I have pointed out, those who use much coffee have not normal reflexes. Another purpose to which the apparatus may be put is to study the shape of the curves in different diseases, in the possibility that some variation in the morphology will be manifest, such as shown here in the choreic knee-jerk, which would be of some value in diagnosis. When a patient is first examined a chart may be made of the knee-jerk and filed away for reference, to be compared with a chart made months later, and would show positively any improvement or progress in the disease.

A verbal description of a piece of machinery or an apparatus is usually not very intelligible to those who are not used to mechanical terms; and the more minute the description, the more hazy will be the idea conveyed to the reader of the mechanism described. For this reason, I shall describe below in as few words as possible the reflexograph. By reference to the accompanying photo-engraving (Fig. 2) a much more lucid understanding may be had than from the description alone:

"This apparatus, devised and constructed by the author, will, as the heading of this article indicates, measure the time required for a complete reflex, measure quantitatively the extent of the knee-jerk, and write a comprehensive



chart in the form of curves, somewhat similar to a fever chart, as will be seen in the accompanying illustrations. These demonstrate characteristics of the reflex in different diseases that can be shown in no other way. The apparatus can also be used to record a variety of vital phenomena of interest to neurologists, such as the Babinsky reflex, ankle clonus, tremors, exhaustion of reflex, and for numerous other purposes, some of which are here illustrated.

Since constructing this machine I have discovered that it is not the first made for the purpose, as I had believed, but it is original, in that it was constructed without any knowledge of a pre-existing apparatus of that kind, and is constructed on different principles from its predecessor.

W. von Bechterew reported a machine of his own in the *Neurologisches Centralblatt*, November 2, 1892, which would write the curve of a knee-jerk and

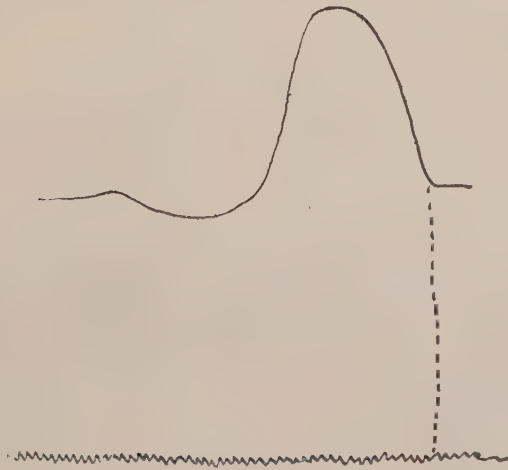


FIG. 1.—Von Bechterew's curve, from a case of epilepsy (from *Neurologisches Centralblatt*), showing the slow ascent and rapid descent, due to the rubber drumhead on the Marey apparatus. Reads from right to left.

show the latent period, but, as far as I know, would do nothing else. It was defective in construction and limited in its uses.

The accompanying illustration (Fig. 1) shows one of the curves made by Von Bechterew's apparatus. Paradoxical as it seems, the strong point in his apparatus is also the weak point, *i. e.*, the rubber-covered drum which is used (the Marey compression apparatus) makes it very sensitive to any impulse, but the resiliency of the rubber so modifies the curve that it is not a true record of the reflex. (1) It imposes a resistance to pressure, which makes a gradual curve on the up-stroke; and (2) when the pressure of the short arm is taken off the rubber by the foot falling back to its first position, there is added the resiliency of the rubber (which had been displaced by force) pressing backward upon the short arm. This causes an abrupt descent on the down stroke of the curve, which is just the reverse of what a knee-jerk curve really is. A normal curve shows either a sudden ascent and a slightly slower descent, or ascent and descent approximately equal (Chart No. XIV), and a pathological curve does not differ from a normal curve to any appreciable extent in the ascending curve, but differs very greatly, and shows the characteristics of the special disease in the descending portion of curve. This can be proved on the author's apparatus, as the construction is rigid and the possible avenues of error eliminated.

In a study of several hundred knee-jerks, occurring in a large variety of nervous diseases, I have never seen a knee-jerk curve, even in spastic cases, in which the ascent was slower than the descent, as in the von Bechterew curve.

The machine is divided into two principal parts: (*a*) one to transmit the impulse from leg to recorder, and (*b*) a recorder to write the chart.

After testing numerous forms and modifications of an automatic striker, I find that for ordinary work a rather heavy metal rubber-tipped percussion hammer is best and most convenient. For special work, and where it is important to make comparisons between the charts of knee-jerks at periods of time sepa-



FIG. 2 — The Reflexograph. Illustrating Dr. Bradley's article.

rated by a considerable interval, in order to note any change, a spring hammer may be used, which is so constructed that the blow delivered may be regulated from light to heavy, and can be reproduced under the same circumstances at any time.

Attached to the leg at a measured distance, usually ten inches, from the insertion of the quadriceps tendon, and running backward, is a flexible steel



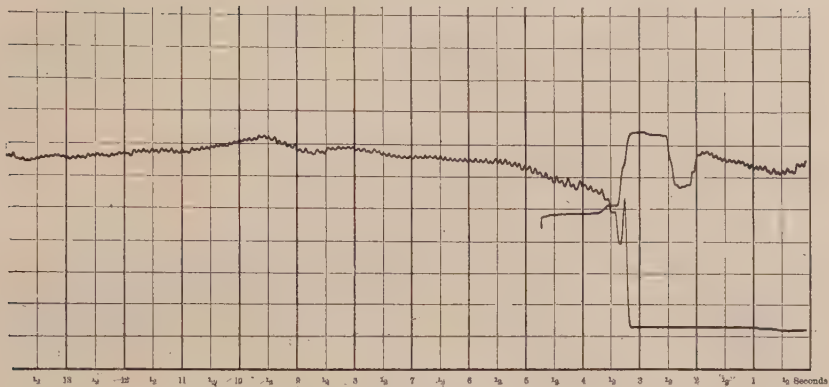


CHART 1.—Lighter. Ankle clonus. Right.  
Reduced to one-half.

Diagnosis spinal syphilis.  
Read from right to left.

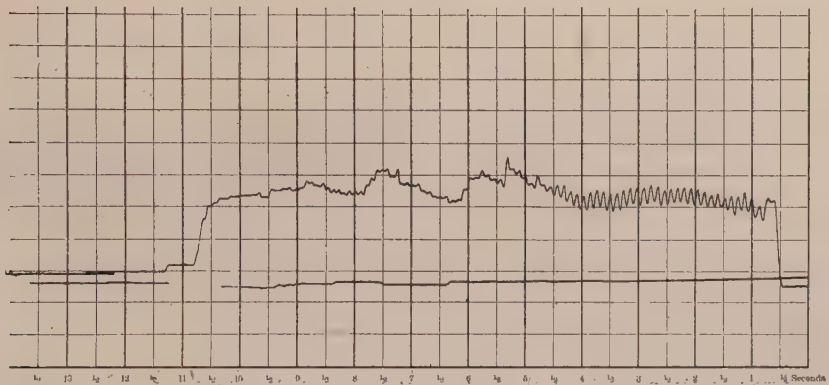


CHART 2.—Ankle clonus. Lighter. Left.  
Reduced to one-half.

Diagnosis spinal syphilis.  
Read from right to left.

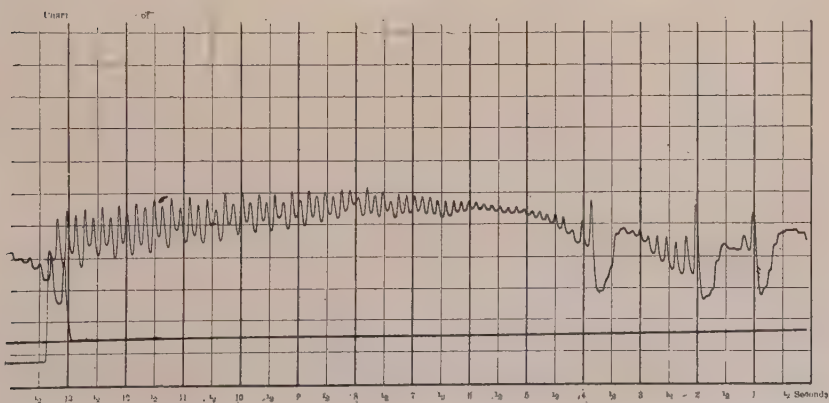


CHART 3.—Ankle clonus.  
Reduced to one-half.

Diagnosis spinal syphilis.  
Read from right to left.

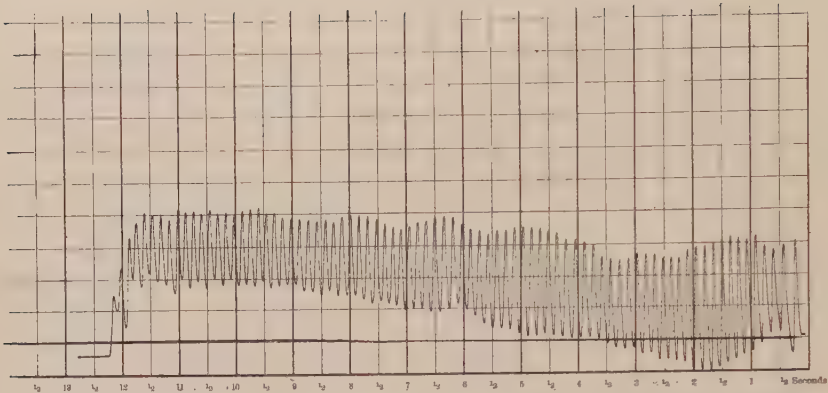


CHART 4.—Ankle clonus. Right.  
Reduced to one-half.

Diagnosis spinal syphilis.  
Read from right to left.

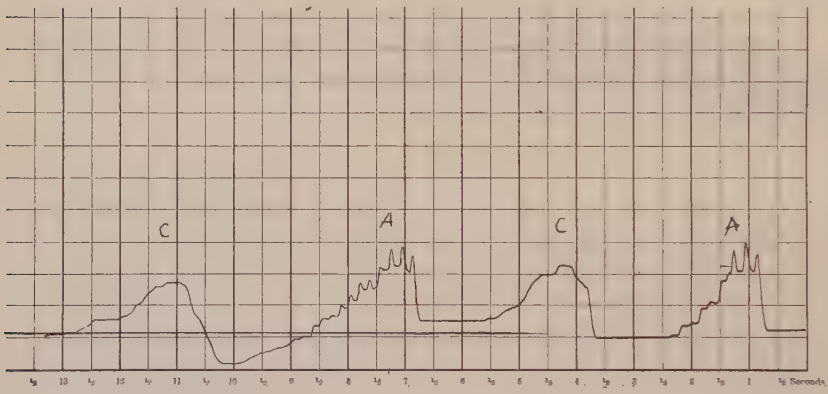


CHART 5.—Babinsky Reflex. Right.  
Reduced to one-half.

Diagnosis spinal syphilis.  
Read from right to left.

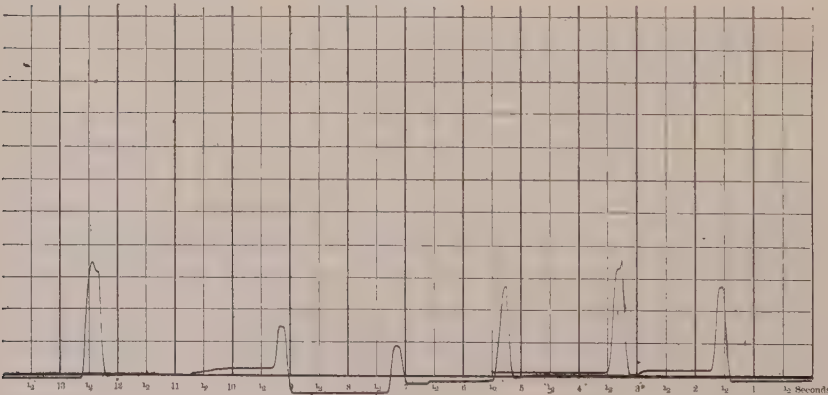
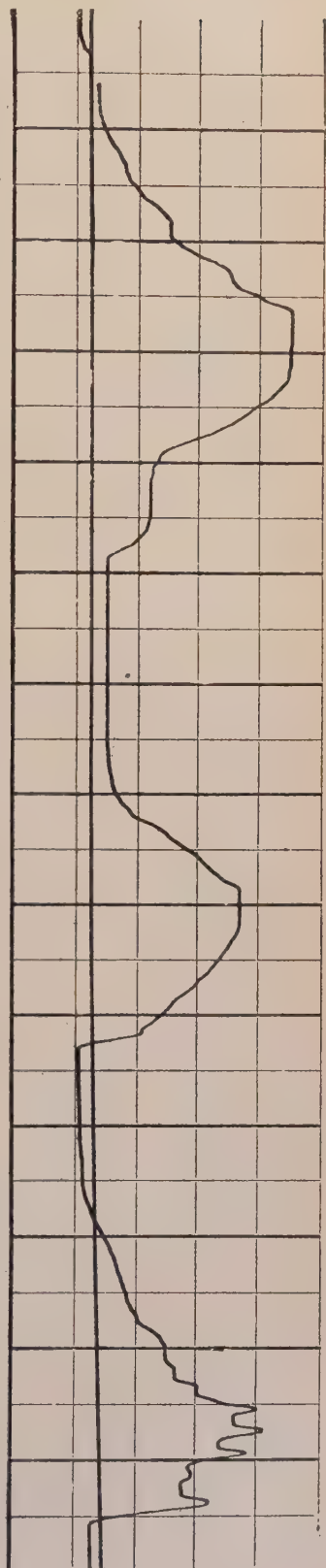


CHART 7.—Dorsal flexion. Left.  
Reduced to one-half.

Diagnosis spinal syphilis.  
Read from right to left.



CHART 6.—Babinsky Reflex. Right.



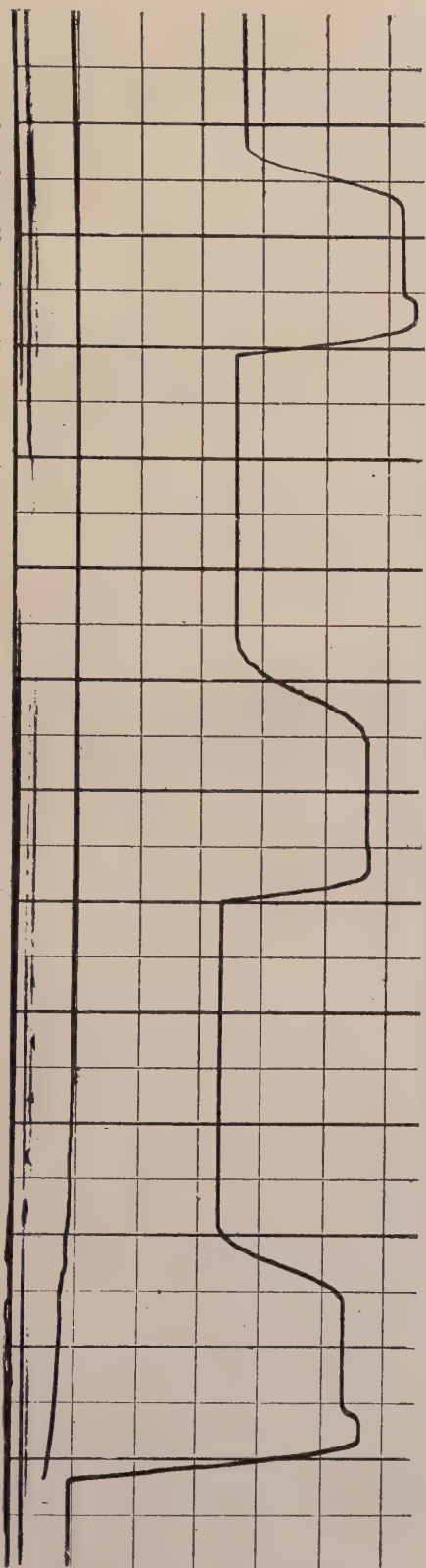
The two curves to the left show typical Babinsky reflexes, giving a very leisurely ascent and descent, the so-called vermicular motion of the great toe. The curve to the right is an ordinary dorsal flexion of the great toe, showing rapid ascent and spasmoid movements, but with a descending curve like a Babinsky reflex.

Diagnosis spinal syphilis.

Read from right to left.

CHART 8.—Knee-jerks of Aug. Dunkled. Right.

Reduced to one-third.



Diagnosis chorea.

Read from right to left.

A pathological knee-jerk, showing the characteristic hang-up of chorea, and illustrating the point that the up stroke remains practically the same in all diseases, but with a great difference in the down stroke.

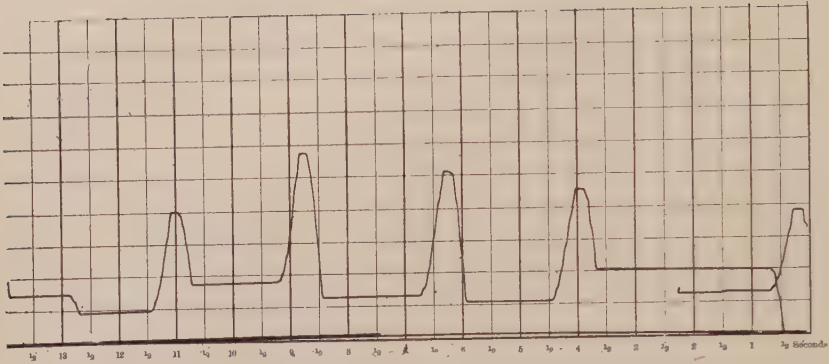


CHART 9.—Knee-jerks of Aug. Dunkled. Left.

Diagnosis chorea.

Read from right to left.

Taken from an unusually severe case of general chorea, with very marked hang-up on left side. This chart, taken from the right side, shows not a trace of the choreic hang-up, and is practically a normal curve.

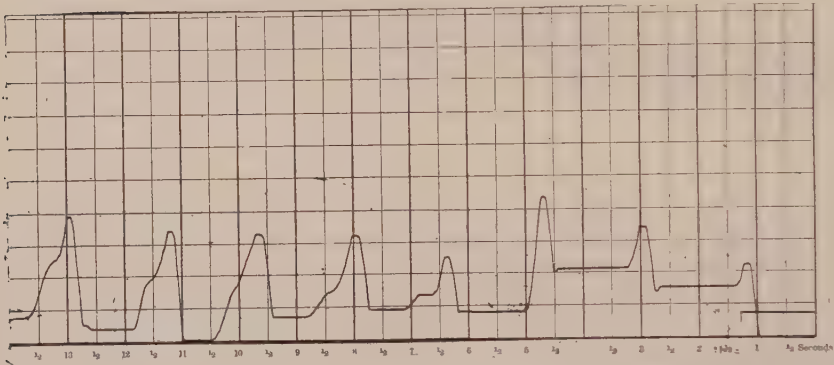


CHART 10.—Knee-jerks of Arthur Benkard. Left.

Diagnosis chorea.

Read from right to left.

Showing that even in cases where the hang-up is present it is not always possible to bring it out. The first three reflexes do not show a hang-up, while the five reflexes to the left do. This is an unusually rapid knee-jerk for a choreic, the time ranging below one second.

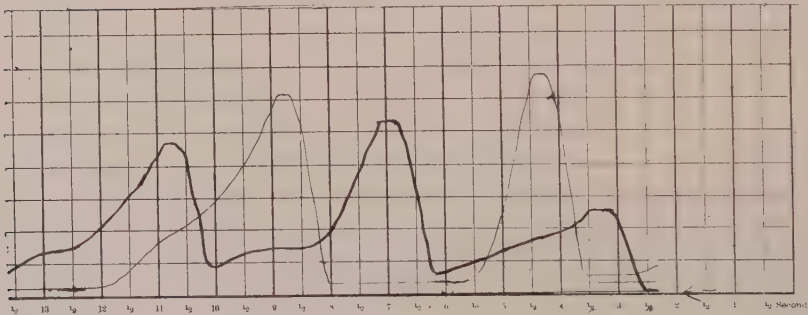


CHART 11.—Knee-jerks of Weidell. Right.

Diagnosis toxic neurasthenia.

Read from right to left.

Showing a choreic hang-up occurring in a case of toxic neurasthenia. Was present only in right leg. Patient had absolutely no signs of chorea and had never had chorea.



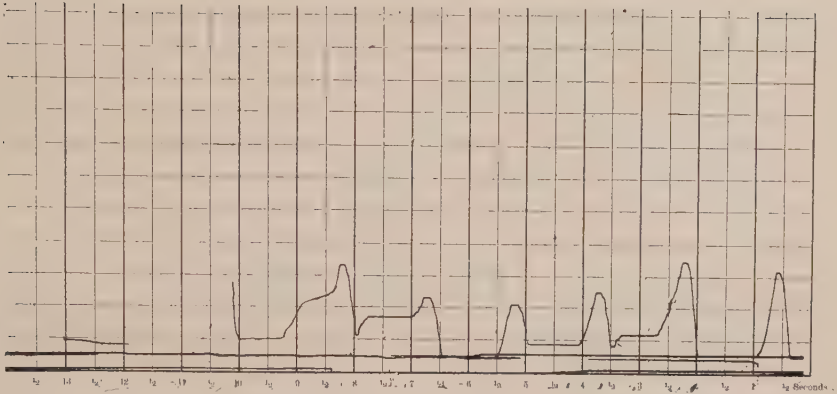


CHART 12.—Knee-jerks of Gulleck. Right.

Diagnosis specific hemiplegia.

Read from right to left.

The last two reflexes to left of series show characteristic choreic hang-up. Taken from a case of spastic hemiplegia. Patient has never had chorea.

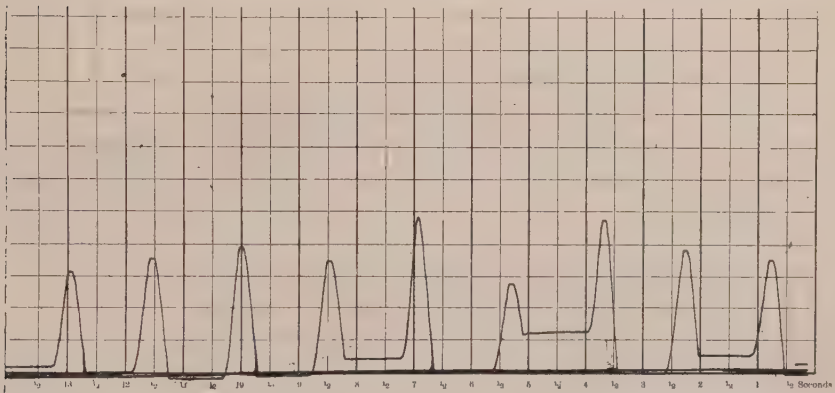


CHART 13.—Knee-jerks of Gulleck. Left.

Diagnosis specific hemiplegia.

Read from right to left.

A spastic knee-jerk, but is not exaggerated. Note the height compared with the short base line, measuring one-half second.

wire running through brass tubing. This wire by flexion permits the foot to move in any direction, sideways, or vertically, but the wire itself being ensconced in tubing for a portion of its length, can only move in a horizontal direction, backwards or forwards. By this arrangement the movement of the foot which travels in an arc of a circle is changed to a movement of backward or forward only. Attached to the wire is an extension tubing, capable of elongation to meet the varying lengths made necessary by the movement of the foot. This extension tube is pinned to the end of the flexible steel wire and extends at an angle to a rod running in a hollow tube, which sets parallel to and is placed at a distance of twenty-two inches from the tube carrying the steel wire. This rod moves in a direction opposite to the direction taken by the wire attached to foot, so that when the foot moves forward the rod is pushed backward. The end of this moving rod is attached to a traveling penholder on the recording apparatus. The rod which runs at an angle from the steel wire is mounted on a pivot, which allows it to swing with the minimum of resistance and is perforated at different places to change the point of mounting, so that the motion transmitted

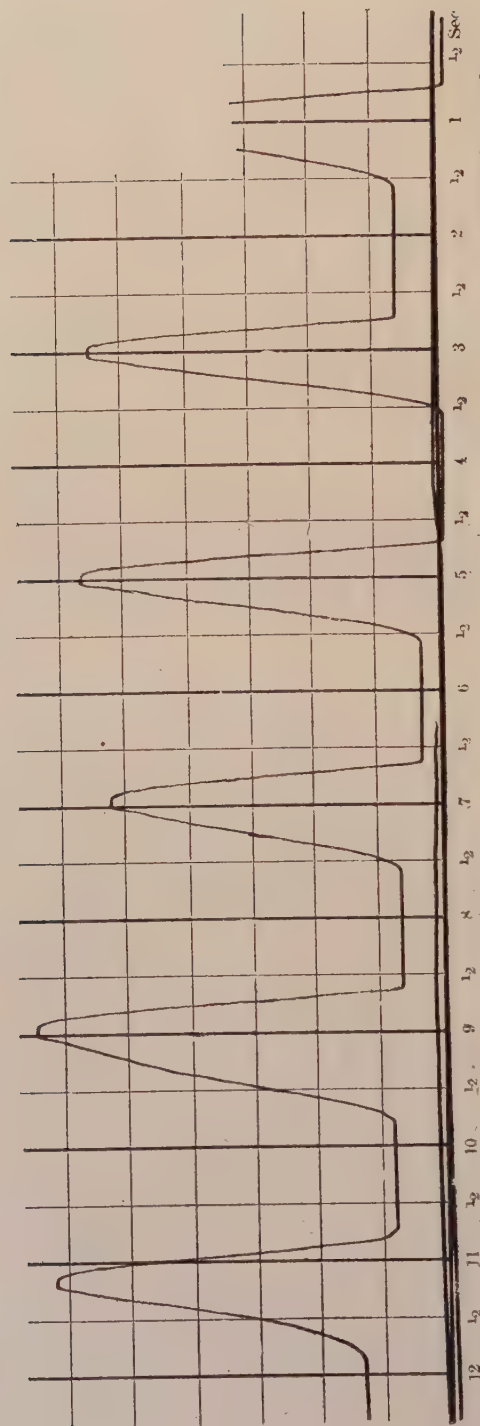


CHART 14. - Knee-jerks. Left.  
Reduced to one-third.

A series of normal knee-jerks, showing the uniformity of the up-stroke, each one taking one-quarter second from base line to apex, while the down-stroke from apex to base varies from one-quarter to three-quarters of a second.



by the foot is reduced to certain different ratios. It can be set so that a radius of action in which the foot moves over the arc of a circle to the extent of one foot can be reduced to record either one-half, one-third, one-fourth, one-fifth, one-sixth of that foot. For instance, if the leg at point of attachment moves nine inches, and the apparatus is set at one-third, the chart will make a record of the knee-jerk which will be three inches from base line to apex. This portion of the apparatus is composed of material which does not either stretch or bend; there is no lost motion, and the impulse received from the moving ankle is transmitted without loss or change, except to reduce it to a definite ratio as explained above.

The recorder is an apparatus consisting of a drum and table, run by clock-work, with a governor attached to overcome the jerking motion inevitable in such mechanism. It is so arranged by simply turning a thumbscrew the speed of the drum can be varied from five revolutions per minute to fifty revolutions per minute, and the table which moves from side to side can be speeded to travel its allotted distance in from one minute to fifteen minutes.

Traveling on two rods above the drum is an adjustable penholder which can be set at any angle, and in which may be fastened by a thumbscrew a fountain pen, crayon or pencil. This holder is attached to the rod of the transmitter.

The moving table or plate is designed for either smoked paper or plain charts, and is for such purposes as getting the exhaustion of the reflex or any purpose where a large number of records are desired in a single chart, having room, and being so speeded as to accommodate several hundred records on a single sheet.

For taking charts of Babinsky reflex, ankle clonus and tremors, the transmitter shown in the illustration is not used; but instead a small rod is attached, one end to the traveling penholder, the other to the great toe.

This apparatus can be speeded so as to make from one or two curves up to ten or twelve on a single chart, which is of some value for comparison or to obtain an average, as the knee-jerk curves differ slightly in the same individual and in the same leg, even when obtained apparently under exactly the same conditions."\*

The blank charts used for these records are prepared by ruling carefully spaced lines in two directions, horizontally and perpendicularly. The horizontal lines are exactly three to the inch; so that when the charting apparatus is set to reduce to one-third, which is the ratio for common use, each space from below upwards indicates a movement at the ankle of one inch. For instance, when the knee-jerk is elicited, if the ankle moves forward in the segment of a circle for a distance of six inches, the charting apparatus will make a line running from the base line up through six spaces, indicating six inches. The perpendicular lines are used for measuring the time of the curve, the drum being speeded to move the chart across the pen the distance of one space in one-half second—from dark line to dark line, including two spaces, one second. Every second line is made darker to break the monotony of the series of lines, and makes counting easier. It was thought best not to use the ordinary electric apparatus for marking time, as it divides time into fiftieths and hundredths of a second, which is a refinement entirely unnecessary, as half seconds and quarter seconds are fine enough divisions for all practical purposes, except where it is desired to measure the latent period.

Charts Nos. 1, 2 3, 4 are an interesting series of curves, taken from different cases of spinal syphilis, in different stages of the disease. Charts Nos. 1

\* From Bulletin of Washington University, July, 1903.

and 2 are taken from the same patient, the right leg being the least affected, and who was able to be about with the aid of a cane, but incapacitated from work. It will be observed that in the chart taken from his good leg, the tracing shows a line almost like a tremor, the excursions of the toe being of a very limited range, while in that taken from his left leg, the curve is courser, showing a greater latitude in the movements of the foot. Nos. 3 and 4 are taken from cases of spinal syphilis which have progressed to such an extent as to confine patients to bed. Although I am not prepared to say positively that such is the case, not having charted a sufficient number of cases with ankle clonus to be certain, still, in those charts, the indication is that the more severe and extensive the spinal lesion, the coarser the tracing of the ankle clonus will be, ranging from a mere tremulous line to a chart showing movements of an inch or more. Charts 5 and 6 are made from spinal syphilis to show the Babinsky reflex. In chart V (A) represents the ordinary dorsal flexion of the great toe with spasmodic movements. Chart VI (B) showing dorsal flexion with spasmodic movements, but with a descent like the real Babinsky descent. Charts V (C) and VI (C) shows the real Babinsky sign, with a slow ascent, sometimes with a pause when fully extended as shown by plateau on top of chart in middle curve, then giving a leisurely descent, the so-called vermicular motion of great toe. In chart VII a condition is shown, which I have not seen mentioned anywhere. On irritating the sole, as in the Babinsky sign, instead of getting a normal plantar flexion, or a real Babinsky sign, the great toe is suddenly extended (dorsal flexion) and very rapidly flexed again. It is what might be called a spastic dorsal flexion. Have observed it in spinal syphilis and cerebral hemiplegia. Charts VIII, IX and X are all taken from different cases of chorea. In order that these charts may not be misunderstood, it is necessary to keep in mind just what a choreic knee-jerk is. The characteristic knee-jerk of chorea was first described by Gordon in *British Medical Journal*, March 30, 1901, page 765, wherein he uses the following language in speaking of the knee-jerk of choreics:

"When patient is recumbent, if one raises the knee, allowing the heel to rest on the couch, making sure that all the muscles of the limbs are relaxed for the time being, and if one then tests the knee-jerk in the usual way, the foot is found to rise more or less smartly; but instead of falling back immediately, it remains suspended for a variable time—hung up as it were—and then slowly sinks back to its initial position."

This sign is now pretty generally recognized and accepted. Is endorsed also by Spiller, *Prog. Med.*, September, 1902, page 319, who further quotes: "Gordon says he has found these modifications of the knee-jerk in many cases of chorea, but never in non-choreic cases." This peculiarity of the knee-jerk is frequently found in one side only. In cases of hemichorea it is usually on the choreic side, but may at times be on the sound side. Chart No. 8, taken from an unusually severe case of chorea, shows a very marked hang-up—that is, the leg, after going up promptly enough, remains suspended for a time just after beginning to come down, making a step-like interruption on the down stroke of curve. Chart No. 9, taken from left leg in same patient, shows an entire absence of the hang-up, and is an approximately normal curve of the knee-jerk. This was a severe case of general chorea. No. 10 (chorea) illustrates that even in a



case in which hang-up is present, it may not be possible to bring it out invariably. The first three reflexes show no sign of a hang-up, while next succeeding five reflexes show it plainly. Charts Nos. 11 and 12 show the choreic hang occurring in diseases other than chorea. I have never seen any reference in the literature of choreic hang-up occurring in other diseases, and Gordon specifically says that it does not so occur. Nevertheless, I have seen it in a considerable number of cases and in quite a variety of diseases, some of which I have been fortunate enough to chart. No. 11 is from a case of toxic neurasthenia, with a well-marked choreic hang-up, which persisted for several months, gradually disappearing. Chart No. 12 from a case of specific hemiplegia, also shows the choreic hang-up; is also spastic and diminished in amplitude, the series on the chart showing no reflex greater than three inches. This is a very unusual grouping of features to occur in the knee-jerks of the same patient; spastic, diminished and choreic. In this case also the choreic hang-up, unlike those occurring in the former cases, seemed to be a permanent condition, remaining as long as the patient was under observation, some seven or eight months. I have also observed the choreic hang-up in several other cases of neurasthenia, and in one case of specific lepto-meningitis, but from whom I was unable to get charts.

# INTERSTATE MEDICAL JOURNAL.

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## EDITORIAL COMMENT.

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### THE ST. LOUIS INSANE ASYLUM.

In the May number of the JOURNAL attention was directed in this department to the annual report of the superintendent of the St. Louis Insane Asylum. The unique character of this report was touched upon and the various elements which gave it especial interest were noted. After a period of eight years, devoted to the care of some eight hundred insane patients, representing an ever-changing material in point of character, but a stable one in respect to numbers, the directing head of such an institution is in a position to speak with some authority, and for this reason, if for no other, the resume of Dr. Runge's eight years' active work should be received with respect and attention. The problems presented in the management of a public institution of this sort may be considered in three divisions: the purely administrative, the medical, that is the clinical, and the sociological. Of the first, there is little to be said, and what there is may be summed up in a few words that would describe the constant struggle between insufficient appropriations and an ever-growing need. There is no necessity to touch upon this question; a bald statement of the fact that the daily average of patients has increased from three hundred and eighty to six hundred and eighty-one in eight years, with no addition to the facilities or to the yearly appropriation points to the lack of municipal conscience with an almost tragic insistence. It must be again emphasized that the main fault for this condition of affairs lies with the indifference of the body of physicians of this city towards the institution. This part of Dr. Runge's paper makes bad reading, but if it serves the purpose of bringing the facts as they are before the medical profession, a certain amount of good may follow.



The purely medical aspect of the paper is of varied interest and reflects more of the personality of the author than the other parts. Psychiatry, unlike the other departments of medicine, has not yet felt to any considerable degree the influence of objective scientific methods. Pathology, with the exception of the case of dementia paralytica and of idiocy and imbecility has not been able to give a basis for either a rational classification, a proper conception or a groundwork of treatment of mental disease. As a result, there are almost as many psychiatries, so to speak, as there are well-trained psychiatrists. It is the purely personal aspect which lends to this part of Dr. Runge's paper so great a degree of interest. In the matter of classification the influence of Kraepelin can be seen in the prominent place given to dementia precox. Mania and melancholia are still regarded as separate types. Such terms as neurasthenic, hypochondriac and hysterical insanity seem at variance with the best opinions today. Such a term as cerebraesthesia recalls the early classification of Beard and his followers. After all, however, there is sufficient elasticity at present in all our systems of classification to allow of almost any terms which mean clinical differences. It is in respect to the therapy, used in the broadest sense, that one finds this paper so far in advance of the usual ones. For eight years 21.8 per cent. of recoveries and 69 per cent. of recoverable cases seems a very remarkable achievement. Notwithstanding the meagerness of assistance, the small number of trained nurses, inadequate equipment, overcrowding, the ratio here obtained is about that found in the records of the best equipped asylums. This means just one thing, and that is that among the recoverable cases the personal influence of a mind trained in practical psychology has been most strenuously at work. The shifting ground that lies between a recovering mania or melancholia and normal health is the place, above all places, where the finer art of a psychiatrist comes into play. The account of a few typical cases included in the paper illustrates this very well.

We turn to the part devoted to imbecility and idiocy with a certain misgiving. In the city of St. Louis there is no provision made for the reception, instruction and treatment of this class of patients. Outside of a few, who for one reason or another, come into touch with advanced methods in the asylum, the rest are taken to the poor house. This is a non-medical establishment, housing almost one thousand insane poor. The contrast between the good results obtained in the few cases which come under the influence of proper pedagogical methods and the absolutely hopeless tragic fate of the others is sufficiently emphatic to condemn a method so antiquated and so cruel that we must go back to the middle ages to find its counterpart. It should be written in flaming letters, that over one thousand insane, together with idiots and imbeciles, are crowded together in one building, under the direction of a non-medical political appointee. Let it be remembered also that within a stone's throw of this place is an institution under the charge of a well-trained psychiatrist, and yet between them there is no connection and no co-operation. It is questionable whether civic stupidity and ignorance can equal this state of affairs anywhere.

The third aspect of this paper is the relation which an institution of this kind bears to the community which it serves and to the body of physicians whose patients are received in it. As a means of education in psychiatry, an institution of this sort should be of the greatest value. That it is not so is a fact to be deeply regretted. It is to be hoped that this paper will awaken in the minds of many a feeling of at least intelligent interest in the work done there. After this state is reached some hope for the rest may be given. It must also be re-

membered that these institutions become the final home of some 1700 citizens of this city, who are deprived of their liberty as the result of disease. It should be seen to that this home should be to them as favorable a place as possible for their comfort as human beings and for their mental and physical improvement.

This paper of Dr. Runge is a notable achievement, and deserves to be read with sympathy and interest.

#### ARTIFICIAL FERTILIZATION OF ANIMALS.

J. Iwanoff in *Russky Wratsch* (No. 12, 1903) gives a preliminary account of a series of experiments he has made with artificial impregnation of various animals. As a whole, the results of these experiments were extremely satisfactory, so much so that the Russian government has offered Iwanoff an opportunity to put the results of his observations to practical use on cattle and horse ranches. By means of this experimentation on a very large scale the author's contentions have proved exceedingly practicable. When the attempts were made in a systematic way under favorable conditions during the period of heat of the respective animal, mechanical introduction of sperma showed a higher percentage of impregnations than the normal sexual act. Thus—*e. g.*, in the spring of 1901 artificial insemination of mares yielded a favorable result in every case.

Artificial impregnation of animals was attempted several hundred years ago by Harvey; later on a larger scale by Spallanzani. Marion Sims, probably, was the first to try this procedure on sterile women. He is at least the first who reports an account of such experiments made upon twenty-seven patients, as he contends, with success in one instance. We find in the literature of the last decade several short reports on similar attempts, but the procedure never found favor in the profession. Difficulties in the proper technic of these applications, the danger of infection of the uterine cavity, and not least the fact that this treatment of sterility is equally repugnant to the patient, her husband and the physician, have barred this procedure from a more extensive use.

While thus the eminent practical importance of the observations of Iwanoff in cattle raising and horse breeding is obvious, it is more than doubtful whether they will prove an impetus for new attempts of treating by means of artificial impregnation that form of sterility that is supposed to be due to mechanical obstruction within the cervical canal.

The results of Iwanoff's experiments are, however, of high scientific interest. He is a pioneer in using for these injections instead of the seminal fluid, as all the preceding experimenters did, a suspension of spermatozooids in either normal saline solution or a slightly alkaline solution of soda. The spermatozooids were recovered directly from the testicles of animals, and at this occasion the interesting observation was made that spermatozooids from animals that were dead as long as twenty-seven hours, had still retained the faculty of fertilization. These experiments explode the teachings of some authorities that the secretions of the prostatic, of Cowper's glands, etc., are indispensable constituents of the seminal fluid. These experiments prove beyond doubt that sexual apathy on the part of the female during cohabitation cannot any longer be considered of importance in the etiology of sterility. That the supposed aspiration of the semen by means of a contraction of the uterus during the orgasm is not essential for impregnation has been shown by the great number of successes following the simple injection of the spermatozooids into the vagina.

Several years ago Fuerbringer advanced the theory that abnormal chemical constitution of the prostatic secretion, due to chronic inflammatory processes in the gland, is detrimental to the vitality of the spermatozooids. In a slightly modified form this theory has at present a number of advocates among leading authorities. Iwanoff's strikingly successful experiments by exclusion of the prostatic fluid would seem to substantiate this view.



# MEDICAL AND SURGICAL PROGRESS.

## INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

**Case of Spleno-Medullary Leukemia Successfully Treated by the Use of the Roentgen Ray.**—SENN (*Medical Record*, August 22, 1903) recently reported two cases of pseudo-leukemia that recovered under the x-ray treatment. He reports here a case of spleno-medullary leukemia with similar results.

The enormously enlarged spleen nearly reached the pubes below, and extended two inches beyond the median line on a level with the umbilicus. In an upward direction the splenic dullness extended as far as the sixth rib. When the treatment was begun on February 3d the blood examination gave the following results: erythrocytes, 3,500,000; leucocytes, myelocytes and eosinophiles, 64,800; hemaglobin, 56 per cent. The eosinophiles were numerous, and the poikilocytosis was very pronounced. During the course of the treatment the use of the x-ray had to be suspended for a day or two on several occasions owing to high temperature and other symptoms of intoxication. The constitutional symptoms became very prominent at the time the spleen first presented indications of progressive decrease in size, about three weeks after the beginning of the treatment. The blood examinations, which were frequently made, showed that the improvement kept pace with the reduction in the volume of the spleen. The first decided changes were the gradual disappearance of the myelocytes and eosinophiles, and the return of the erythrocytes to their normal shape. An examination two months after the beginning of the treatment showed no myelocytes, a few eosinophiles, and very little poikilocytosis.

In June the patient returned home, practically cured. Menstruation, which had ceased for a year, returned to the normal. The final blood examination showed no abnormalities. The spleen and liver returned to their normal proportions. This being the only case which the writer has seen recover from leukemia, he concludes that the cure must have been brought about through the application of the rays. He states, too, that he has "not seen a single case of either carcinoma or sarcoma benefited by this treatment."

There can be no longer any doubt as to the microbic origin of leukemia, nor of the anti-microbic action of the Roentgen ray. The transillumination of the affected bones undoubtedly accomplished its share in destroying the microbes of the general infective process. The writer believes that the germs of spleno-medullary leukemia are very susceptible to the action of the x-ray, and concludes that the rays promise to accomplish much in the treatment of both genuine leukemia and pseudo-leukemia, and seems to prove that, etiologically, the two affections are very closely allied.

**Concerning the Absence of Casts in the Urine of Nephritics.**—TREUTLEIN (*Muenchener Medicinische Wochenschrift*, No. 35, 1903) conducted a series of systematic observations and experiments with reference to casts in the urine of nephritics, and arrived at these conclusions: That there are cases of nephritis, otherwise typical, presenting albuminuria and retinitis albuminurica, in which the sediment contains no casts whatever; that this cannot be looked upon as a digestive process due to the pepsin excreted by the kidneys; that leucocytes, due to an existing cystitis, which has ascended into the pelvis of the kidney and the uriniferous tubules, do not possess the power of dissolving the casts; that the leucocytes of ordinary surgical abscess do not have this faculty

either; that this cylindrolysis is caused by the action of bacteria (*Bact. coli*). This occurs in cases in which there is an existing cystitis, either in the bladder or in the pelvis or uriniferous tubules. The ferments of the *Bacterii coli* alone have not the power of dissolving casts.

**The Diagnosis of Chronic Nephritic Processes.**—SCHWARTZKOPF (*Muenchener Medicinische Wochenschrift*, No. 35, 1903).—The absence of albumin in the urine does not exclude the possibility of a nephritis. Even in well-developed cases, albumin may be absent. This is especially true in cases of chronic interstitial nephritis with polyuria. The writer maintains that urinary casts practically never occur in healthy individuals. There can be no doubt that an early diagnosis of nephritis may frequently be made through the examination of the sediment, even though tests for albumin are negative. A number of cases are cited in corroboration of this view.

**The Inheritance of Syphilis and the Placental Transmission of Variola.**—KASSOWITZ (*Wiener Medicinische Wochenschrift*, No. 33, 1903) presents the following rules with reference to the inheritance of syphilis:

1. A woman in whom no evidences of syphilis have ever been found, may give birth to a number of syphilitic children, if the father had had syphilis.
2. The intensity of such a syphilitic affection depends not upon a recent, hidden affection of the mother, but upon the disease of the father.
3. After a thorough mercurial treatment of the father, perfectly healthy children have been born, though previously only diseased children were born.
4. The same has been frequently noticed when a second marriage replaced a syphilitic husband with a healthy one.

**Tetany and Autointoxication.**—LOEBL (*Wiener Klinische Wochenschrift*, No. 33, 1903) is led to conclude from his observations that in typical cases of auto-intoxication some of the cardinal symptoms of tetany are frequently present—usually Chvostek's, Erb's and Hoffman's signs.

In two-thirds of the cases of autointoxication observed by the author there were tonic spasms of the muscles of the extremities, without loss of consciousness and without typical tetany symptoms.

The examinations of the urine in various forms of tetany often shows marked disturbances of the metabolism, such as transitory acetonuria, albuminuria and cylindruria. A permanent kidney lesion was not found in a single case of tetany, in spite of the presence of granular casts. He considers tetany a manifestation of an autointoxication, with a special affinity for the peripheral, nervous and muscular systems.

**Pancreatitis Following Typhoid Fever.**—MOYNIHAN (*Lancet*, June 6, 1903) reports the case of a boy thirteen years old, who made a very slow recovery from typhoid fever. During his convalescence he frequently complained of paroxysmal pains in the upper part of the abdomen. They began with nausea and vomiting, and lasted several hours. Three months later he began having periodical attacks of jaundice, which finally became very intense and did not disappear. A diagnosis of a typhoidal infection of the gall-bladder, with the possibility of gall-stones, was made and laparotomy recommended. The gall-bladder contained no stones. The cause of the icterus was found in the pancreas. The head and part of the body of the pancreas were greatly enlarged and very hard. The bacteriological examination of the bile showed a pure culture of typhoid bacilli. The Widal reaction was positive in a dilution of 1:100. Four weeks after the operation typhoid bacilli were still to be found in the secretion from the gall-bladder. Upon the use of large doses of urotropin the bacilli disappeared.



## SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

**Two Cases of Ileo-Cecal Invagination in the Adult Cured by Operation.**—ELGART (*Wiener Klinische Wochenschrift*, No. 32, 1903).—The etiology of this condition is very different in the adult from that which obtains in the infant. In the latter, toxines developing within the canal cause muscular contractions which seem to have something to do with the origin of the trouble; but in the former, tumors or diverticula by dragging at an attachment to the wall of the gut, cause an invagination. It is fortunate that it is now well known that an artificial anus does no good in these cases. Formerly, the operation was often done because it is so easy and of such short duration. Now, we consider it better to do absolutely nothing at all of a surgical nature when we have a patient in such a state of collapse that he can stand nothing more than an artificial anus. There are only two logical operative procedures for this condition: disinvagination with fixation of the limbs to prevent recurrence, and, second, resection. If the second plan is to be followed, it is simpler to resect the intussusceptum by making, first of all, a circular peritoneal suture, uniting healthy gut and intussusciens, then incising this latter and removing the two inner layers; after which a few sutures are placed through and through the divided ends. This is simpler and less lengthy than a complete resection, but can, of course, not be done unless the intussusciens is still in good condition at the time of operation.

The two cases here reported did well, one having been operated by each of the two methods proposed above.

**The Surgical Cure of Facial Paralysis.**—FAURE (*Bulletins et Memoires de la Societe de Chirurgie de Paris*, Tome xxix, No. 28).—Here are analyzed all the cases in which nerve suture has been performed for this affliction. In some the peripheral portion of the facial has been attached to the hypoglossal, and in others to the spinal accessory; the latter procedure is considered the better by our author, though he admits that the principle of the operation is the same in either case. Twelve such operations have been done and with some degree of success in all, most of them being perfect recoveries. As might be expected, the best results are promised in the most recent cases, though it must be admitted that a perfect success crowned the efforts of one operator whose patient had been affected for eight years. The hypoglossal nerve has been preferred by some surgeons because the center for that nerve in the brain is near that for the facial; however, this does not really seem to be a matter of grave import, since equally good results have been accomplished both ways.

**Struma with Metastases in the Bones.**—DE GRAAG (*Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie*, Bd. ix, Hft. 5).—The patient had had a swelling on the neck for eight years, which same gradually increased in size all the time; finally, spinal symptoms commenced and it was a comparatively short time before complete paralysis of the lower portion of the body ensued. At the autopsy a tumor mass was found to press upon the spinal marrow, being quite similar in its finer structure to the struma, which proved to be carcinomatous. The especially interesting thing about the secondary growths is that they contained gland follicles in which colloid had been produced in the typical manner. Thus it is seen that there were really gland metastases as well as being of cancerous nature.

**The Present Status of the Surgery of the Stomach.**—W. J. MAYO (*Northwestern Lancet*, Vol. xxiii, No. 14).—In going over the records of some 900 operations upon the organs contained within the upper part of the abdomen, this author, who has done such excellent abdominal surgery, came to many interesting conclusions. He notes a very close relationship between diseased conditions of the stomach, pancreas, duodenum and biliary passages; indeed, he is forced to the conclusion that disease of one of the above mentioned organs can only be regarded as a menace to all the others. Primarily it is usually the stomach or gall-bladder that is affected, and then the other two become impaired as a consequence. Nowhere in the body are more favorable circumstances for operation presented than in the stomach; but on the other hand the diagnosis presents difficulties which are often not to be overcome except by the explorative incision. In 80 per cent. of the cases a clinical diagnosis has been possible, and is considered by the author to be of prime importance; laboratory evidence, while never to be neglected, is regarded by him as corroboratory evidence. In fact he warns against waiting for the appearance of definite laboratory evidence, unless the internist is satisfied with sending to the surgeon a patient on whom nothing of a surgical nature is any longer possible.

Surgical diseases of the stomach are of two kinds: inflammatory (ulcer), and cancerous. Pain is the leading feature of ulcer, and a large majority of chronic cases are to be regarded as surgical cases if any good is to be hoped for. The effect of proper drainage of the stomach in these cases is too well known at present to deserve more than passing mention.

**The Narcosis in Ileus.**—KAUSCH (*Berliner Klinische Wochenschrift*, No. 33, 1903).—In these cases there is little to be done without a general anesthetic, since it causes terrible pain to exert any traction on the root of the mesentery. In only two classes of cases is it permissible to use local anesthesia, viz., where merely an artificial anus is to be made, or in cases of incarcerated hernia. The stomach can not be kept empty since the intestinal contents, especially in the Trendelenburg position, keep flowing in; hence the patient is sure to vomit in general narcosis, and runs the great danger of inspiring the foul stomach contents. Washing out the stomach and leaving the tube in place during the operation does no good, because the patient vomits around the tube, so it occurred to the writer to prevent this by the use of an apparatus which consists of a stomach tube surrounded, near its extremity, by a thin rubber ball which goes into the stomach and is then inflated from without, and when tight is withdrawn until it effectually blocks all the oesophageal outlet not filled by the stomach tube which it surrounds. Thus the patient can keep emptying his stomach through the tube, while nothing can escape around the same. Three cases which have been treated in this way suffered no ill effect from the anesthetic, and it was easy by massage of the intestine to empty it through the stomach, so that all the abdominal contents were relieved of the tension which had existed previously.

**The Operative Treatment of Progressive Purulent Peritonitis.**—WEBER (*Beiträge zur Klinischen Chirurgie*, Band xxxix, Heft 2).—There exists the greatest possible difference between the reported results of the different surgeons; this is accounted for by the fact that it is almost impossible to properly classify these cases. It is quite impossible that a patient should recover after the entire peritoneum has become once diseased, hence it is seen that the term "general peritonitis" is frequently used improperly. The best results have been attained in those cases where the operations have been performed early, something which will be found true in other departments of abdominal surgery. We have offered for our consideration here, the records of thirty-three such cases. The most difficult thing about the whole matter is to make a prognosis which has any real



value; some of the cases which are apparently the most favorable, die soonest, while others in which little hope was entertained, go on to perfect recovery. One of the worst symptoms is the well-known "euphorie," as the Germans call it. The peritonitis arising from appendicitis gives about the best prognosis of any, on account of the position of the organ, as well as upon account of there being a small amount of infecting material emptied into the cavity. The author's operative procedure is now the eventration of everything necessary to the process and then the thorough sponging and drainage of the cavity with dry gauze. The good results attained are certainly convincing as to the correctness of the author's ideas.

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**A Contribution to "Exclusion" of the Intestine.**—VAUTRIN (*Revue de Chirurgie*, No. 7, 1903).—This procedure of switching out a segment of gut which it is impossible to resect, has come to be highly valued in the treatment of inflammatory conditions. As soon as the fecal current is diverted, the relief of pain and other symptoms is usually immediate. It is also true that a tumor of the bowel will often decrease so much in size after this operation that it can be removed at a second sitting, though such a thing would have been impossible originally. Of course a fecal fistula can be successfully treated in this way, where suture of it or resection are not to be thought of. The author goes freely into the technique in all its different forms, but this is a matter too well known to deserve extended mention here. The records of three successful cases are submitted.

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**Penetrating Pistol and Stab Wounds of the Abdomen.**—GEBELE (*Muenchener Medizinische Wochenschrift*, No. 33, 1903).—At the Munich clinic it is now the rule to dilate every wound of the abdominal wall in order that a laparotomy may be performed if it is found that the peritoneum has been wounded. This latter is done in every case where the cavity has been entered, whether there are symptoms of visceral injury or not. In view of the fact that symptoms of an internal injury are inconstant and often misleading, this can only be regarded as the safe course. The same conclusions cannot be drawn for this sort of work in private life as found to be of greatest value in war-time; at the same time it may be said that shock is no contra-indication to the performance of immediate operation. Chloroform is to be preferred to ether on account of the greater liability of pneumonia following the use of the latter drug. It is a well-known fact that pneumonia is a constant source of danger after surgical operations involving the viscera contained in the upper portion of the abdomen. Hence any sort of precaution tending to avoid this danger is welcome. The mortality in this class of injuries is constantly growing less at the Munich clinic, hence the powers that be seem disposed to follow the above mentioned course which has been productive of satisfactory results.

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**Operative Possibilities in Cases of Advanced Carcinoma of the Breast.**—PILCHER (*Annals of Surgery*, September, 1903).—In many of Pilcher's cases the earliest evidences of disease consisted in the appearance of secondary gland nodules above the clavicle; hence he is encouraged to extend his procedures in that direction at the primary operation. It is difficult for the reviewer to reconcile this conclusion with the fact that he had the highest definite mortality in just those cases where he removed the cervical glands at the primary operation. Where the glands at the apex of the axilla are found to be markedly enlarged it is safe to assume that the cervical contents are diseased. After discussing the various appearances of carcinoma in this region, the author comes to the very logical conclusion that the surgeon actually never sees a cancer of the breast until it has reached what may properly be called an advanced stage. Some are, however, far advanced locally before they present symptoms of metastasis, and

these are of course the most favorable for operation. Pilcher stands for the most thorough and complete possible extirpation of axillary and cervical contents in every case.

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**A Vesical Calculus Caught in One of the Sutures of a Bassini Operation.**—NOSSAL (*Wiener Medizinische Wochenschrift*, No. 31, 1903).—The patient who forms the nucleus of this most interesting case history, had suffered from pain at urination for about a year, this having commenced shortly after he had been operated upon for inguinal hernia; a matter of importance in this connection when we learn more about the case. So grave were the symptoms that it was considered necessary to open the bladder, when to the surprise of all present, it was impossible to remove from the viscus a large stone which was in plain sight and which could be firmly grasped through the large wound. The reason for this was seen to be that the stone was attached to the bladder wall by a suture. The suture was cut and then no further trouble encountered. The whole thing was cleared up when the patient then related that his urine had been bloody for a few days after the hernia operation of a year before. The mechanics of the thing were simply as follows: one of the deep sutures had penetrated the bladder wall and around the portion of the thread which lay within the viscus there had formed a calculus, in the well-known way. (Certainly another argument for the absorbable suture.)

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## THERAPEUTICS.

IN CHARGE OF

ALBERT E. TAUSSIG, M. D.

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**The Surgical Treatment of Rheumatic Fever.**—J. O'CONNOR (*Lancet*, January 24, 1903).—The writer recommends for all cases of acute articular rheumatism that do not respond to the administration of salicylates, nor to the usual external and internal treatment, the surgical opening and drainage of the affected joints. He reports twenty such cases treated surgically. The results in all were strikingly favorable, both as regards the cure of the acute process and as regards the ultimate restoration of perfect function.

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**The Treatment of Tetanus by Means of Antitoxin.**—V. SCHUEKMANN; FROTSCHER (*Deutsche Med. Wochenschr.*, 1903, No. 10).—The former writer was led by a case of tetanus that had a fatal ending in spite of the use of antitoxin, to look into the statistics of this procedure. His results were adverse to the efficiency of tetanus antitoxin once the disease has broken out. He urges that every case so treated, be the results good or bad, be published. Only so can a final estimate of the curative value of tetanus antitoxin be obtained. Frotscher, on the other hand, reports a severe case of traumatic tetanus, with a period of incubation of thirteen days, healed by the injection of antitoxin, together with a late excision of the wound. He expresses himself enthusiastically about the value of the treatment.

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**The Results of the Serum Treatment of Scarlet Fever in the Viennese University Clinic.**—ESCHERICH (*Wiener Klin. Wochenschr.*, 1903, No. 23).—The writer's observations on the use of Moser's serum in scarlet fever have brought him to the conclusion that with the discovery of this serum we have reached a turning point in the treatment of the disease. No other treatment has shown anything like such uniformly good results, and none can claim to be considered so rational a procedure. Unfortunately, there are sometimes unpleasant after-effects, and



this together with the high price of the serum and the large doses that are still necessary, will, until a more perfect serum can be produced, confine its use to the most severe cases. Possibly the discovery of Moser's serum will eventually help to determine the etiologic agent of scarlet fever.

#### A Further Contribution to the Etiology and Specific Treatment of Hay Fever.—

DUNBAR (*Deutsche Med. Wochenschr.*, 1903, No. 9).—Dunbar opposes the view that micro-organisms, in particular bacteria, are the exciting factor of hay-fever. He finds that although normal individuals cannot be given hay-fever, susceptible ones will respond to the administration of the pollen of various grasses by a typical attack of the disease. It is immaterial whether the pollen extract be applied locally or injected subcutaneously, and the same results are obtained in winter as during the regular hay-fever season. An antitoxin obtained by injecting pollen extract into animals produced, in his experiments, relief of the hay-fever symptoms, and often even a definite cure. If the antitoxin be added to the virulent pollen extract and the mixture be applied locally to the mucous membrane, or injected hypodermically, no effect was produced, showing that the antitoxin actually does neutralize the pollen toxine. Dunbar's work seems definitely to have established the pollen theory of hay-fever, and if his results are confirmed, his serum marks the greatest advance yet made in the treatment of this much dreaded disease.

**Local Treatment.**—C. BOUCHARD (*International Clinics*, 1903, vol. ii, 13th series).—The fact that local diseases can be cured by means of general medication induced the writer to make an effort to limit the action of the remedy to the part affected by injecting it into the diseased tissue itself. In cases of acute articular rheumatism, when six grammes (90 grains) of sodium salicylate are given, this medicament is probably pretty uniformly distributed throughout the body. Only a small portion of the drug, perhaps not more than five to ten milligrams, actually reaches each affected joint and exerts there its healing properties. In accordance with this view the writer treated acute articular rheumatism by the injection of extremely small doses of sodium salicylate into the diseased joints, with strikingly good results.

A patient suffering from rheumatism of the knee, with a chronic tendency, had been in bed for two months, and had in six weeks derived no benefit from the usual methods of treatment, general or local. An injection into the joint of ten centigrams of salicylate enabled him to get up the same day, and on the following day he was cured.

In a series of cases of acute polyarthritis, both with fever and without, the injection of five, ten or twenty centigrams of salicylate put a stop to the redness, pain, effusion and immobility; but this favorable effect occurred only in the joint that was treated. The other joints were not modified. New joints sometimes became inflamed, but this did not influence the joint that was getting well nor were they influenced by the latter. Any one joint may thus be cured while the others remain, or may become, inflamed. This proves that the minute doses injected locally have no general action and suggests the limitation as well as the value of this mode of treatment. There is, of course, nothing to prevent several joints from being treated simultaneously or in succession, and in case of relapse the treatment may be repeated.

The lightning pains of tabes and the pain of neuritis do not respond to salicylate injections. The writer found small doses of mercury and potassium iodide very efficient here. He injects 2 c.c. of a three or four per cent. of potassium iodide (stronger solutions cause considerable pain) and a very small amount of biniodide of mercury into the tissue about the seat of pain. His usual formula was:

|                    |     |    |
|--------------------|-----|----|
| Mercury biniodide, | 0   | 01 |
| Potassium iodide,  | 4   |    |
| Water,             | 100 |    |

Sig.: Inject 2 c.c. locally.

This treatment was also very efficient in the obstinate late manifestations of syphilis. The injections, when made into gummata that had resisted vigorous constitutional treatment; or where specific treatment was poorly borne, were followed by rapid absorption of the lesion. Recurrences can, however, be prevented only by general treatment;

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## PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

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**About Immunization Against Tuberculosis.**—F. NEUFELD (*Deutsch. Med. Woch.*, 1903, No. 37).—Under R. Koch's direction Neufeld has conducted experiments on a great number of goats, donkeys and cattle, the object of which was to immunize these animals against bovine tuberculosis by means of human tubercle bacilli. They were begun long before Behring published his results on cattle-immunization and achieved in a much simpler and shorter way the same purpose. It was possible to immunize a goat against a fatal dose of bovine bacilli in nineteen days. The method followed was the intravenous injection of small doses ( $2\frac{1}{2}$  mg.) of living tubercle bacilli derived from the human organism. In no case a lasting infection with these bacilli occurred, although evidence was found at the autopsies that the human bacilli had at some time led to typical tuberculous lesions. After two or three injections (sometimes preceded by the inoculation of pulverized dead bacilli) an absolute immunity against the fatal dose of bovine bacilli could be demonstrated. Since 2.5 mg. of living bacilli represent a number of organisms, that under ordinary conditions never are present in a natural infection, the degree of immunity achieved can be estimated as very high. Aside from the immense importance of these results for the practice, they again have justified Koch's assertion of the difference of human and bovine bacilli. The reciprocal test of bovine tuberculosis on human beings, of course, could not be made. One salient point that Neufeld's investigations have made very clear is that immunization against tuberculosis by means of bacillary products is impossible.

**A Study of the Active Substances in Normal Serum.**—L. REMY (*Ann. de l'Inst. Pasteur*, Vol. 17, No. 6).—This paper brings a very convincing and elegant confirmation of the existence of different complements in a normal serum. L. Remy found that the serum of rats, besides its bactericidal effect on anthrax-bacilli possesses similar qualities as to other micro-organisms. This quality is only partially destroyed by keeping the serum for half an hour at  $55^{\circ}$  C. That the remaining portion of this bacteriolytic effect is not due to other but complement action is shown in the following way: The heated serum is able to complement a specific bacteriolytic immune serum, for instance a cholera serum. But it is not possible to activate with the same serum an inactivated hemolytic serum that is easily activated by the unheated serum. The author concludes from these results that there exists in the rat serum a complement resistant to heat, similar to others of the same character described by Ehrlich. The consequence is that the bacteriolytic and hemolytic complement are different from each other. Remy has not succeeded in demonstrating a multiplicity of the bacteriolytic or hemolytic complements.

**The Antitoxic Tetanus-Therapy.**—E. V. BEHRING (*Deutsche Medic. Wochenschr.*, 1903, No. 35).—The opinion of Behring on the different phenomena of tetanus-intoxication and detoxication and on the antitoxic-therapy is given here



in an interesting form. The tetanus toxin, if applied subcutaneously, makes its way in part from the nerve-endings along the axis-cylinders to the ganglionic cells of the spine and medulla. Partly it enters the blood and reaches secondarily from it the nerve-endings, and later the central cells. It is a mistake to believe that only the motor cells possess affinities to the toxin; the latter are found just as well in the sensory and sympathetic cells, a fact that lately has been established also by Morax and Marie. The antibody of the serum, that is therapeutically concerned, has no bacteriocidal, but only antitoxic qualities; tetanus-bacilli grow in the antitoxic serum. In other words, the antitoxin does not exert any influence on the body-cells, but only on the carrier of the toxin. A new idea is introduced by Behring by the assumption that the inactivation of the toxin is not brought about only by the antitoxin, but that for this phenomenon the presence of a third, unstable substance, the "conductor," is necessary. Its function is to establish the contact between toxin and antitoxin. In the determination of the therapeutic value of a serum this factor is said to be very important. The paper concludes with directions for the use of tetanus-antitoxin, of which one point may be mentioned as suggestive, the local application of the serum in fluid or dried form. As will be remembered, the same method has lately been used in diphtheria.

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**Histology and Histogenesis of the Corpus Luteum and the Interstitial Ovarian Tissues.**—FRANZ COHN (*Archiv fuer Mikrosk. Anat. u. Entwickel. Gesch.*, Vol. 62, Heft 4).—The theories lately promulgated by Born and L. Fraenkel, dealing with the corpus luteum as a secreting gland, influencing the insertion of the ovum, find a certain confirmation by this investigation, that was conducted on the ovaries of rabbits, obtained at different times after the coitus. The results of this study group themselves under the following points:

The lutein cells are formed by the epithelial cells of the granulosa by hypertrophy, not by hyperplasia. The hypertrophy is due alone to an increase of the mass of the protoplasm; the nuclei show only at the time of the rupture of the follicle, an enlargement to double the original size. In the rabbit the acme of increase in size of the lutein cells occurs on the eighth day, the time of the insertion of the ovum in the uterus. Within the lutein cells an accumulation of secretory products in form of fine droplets is observed. From the theca the connective tissue grows in between the masses of lutein cells and surrounds the single cells, forming in these septa a capillary network that communicates with the vessels of the theca. This network is fully developed at the time of egg-insertion. All this seems to prove that Born's opinion of the corpus luteum as a gland with internal secretion is correct. The interstitial ovarian tissue differs from the lutein cells by smaller size of the cells and by a less developed capillary system. In its cells, also, products of secretion can be demonstrated. The interstitial tissue arises from the proliferating thecæ of atretic follicles.

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**Contribution to the Bacteriology of Yellow Fever.**—IVO BANDI (*Centralb. f. Bacter. Orig.*, Bd. 4, No. 5).—In this paper the author fights a valiant battle for Sanarelli's bacillus. While in this country the subject of the bacillus icteroides has been long since laid ad acta, it appears to us as an anachronism to see at the present time some observer spend an enormous amount of work and study on it. Bandi has done this, and claims that the bacillus can always be demonstrated in cases of yellow fever and that it is not found anywhere else. The absence of agglutination reaction on contact of the bacillus with the patient's serum is explained by referring to absence of such a reaction in tetanus and diphtheria. Similar means of defense are used throughout the paper. Reed and Carroll's discoveries are eliminated by the assertion that besides yellow fever there are two other tropical diseases, the febris biliosa gravis and the icterus gravis, that sometimes resemble the first and, therefore, may be mistaken for it. Should we have lost Lazear by such a disease? The paper is not an ornament to one of the highest standing scientific journals of Germany.

## GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

**On the Activity of the Milk Glands. Indications and Contraindications of Breast Feeding.**—A. SCHLOSSMANN (*Monatschr. f. Geb. und Gyn.* Band XVII, Heft 6.)—At present it seems to be the general consensus of opinion among physicians that, whenever possible, the mother should nurse her baby. Some authorities, however, see an absolute contraindication against nursing in tuberculosis of the mother. The first part of Schlossmann's paper is devoted to an interesting critic of this contraindication which the author refuses to accept as such.

The danger of a tubercular infection of the child by means of bacilli contained in the breast milk is exceedingly small. The typical mode of infection is that of contact. In order to avoid such infection it would be necessary to immediately separate the newborn from its tuberculous parents, a thing that cannot be carried out in practice. Breast feeding does not increase the danger from contact infection, but certainly makes the child more resistant against any infection, because it guarantees a better development of the child in its first days of life. There is no actual proof for the view entertained by some writers that nursing is harmful to tuberculous mothers. Schlossmann is inclined to believe that just the opposite holds good, since it is an every-day experience that mothers who nurse their babies flourish and grow stout. Nursing produces in this way exactly the effect that we try to obtain in tuberculous patients by means of overfeeding. The author does not believe that nursing should be permitted in every case of tuberculosis. He thinks, however, that tuberculosis should no longer be considered an absolute contraindication against nursing.

Quite different, of course, is the question whether a tuberculous woman should be permitted to nurse another mother's baby. Here the answer must be in the negative. The author emphasizes the carelessness with which wet-nurses usually are selected, and urges the use of a tuberculin injection for diagnostic purposes in every case. Out of forty-nine wet-nurses examined in this way thirteen gave a positive reaction, although their histories did not suggest the possibility of their being tuberculous.

The second part of the paper contains a great amount of very interesting observations made by the author regarding the function of the milk glands. We will record a few of them. During an acute mastitis, even with formation of an abscess, the function of the glands can be preserved for a long time by a systematic application of the breast pump every three hours. In the same way a normal function of the glands can be obtained in cases where the child for certain reasons (e. g., premature birth) begins to nurse several weeks after confinement. The amount of milk in certain cases is enormous, without any harm to the mothers. Thus a wet-nurse, employed by the author, furnished during the twenty-five months following her confinement an average of 2000 grams a day, that is a total of 816 liters. She was employed in the author's nurslings home and saved, in his estimation, the lives of about twenty children. At the time when she entered the home her weight was fifty-nine kilograms; when she left, it was seventy-eight. Careful observations have shown that in this time the quality of the milk had but slightly changed, the amount of fat and sugar remaining almost stationary, and the amount of proteids diminished. In cases of deficient secretion often a satisfactory flow of milk can be obtained by simply permitting a stronger child to suck. The author disapproves of all special foods for a nursing woman. She is permitted to eat whatever will agree with her. Nothing is more dangerous than to force disagreeable food upon a nurse; it will necessarily lead to a decrease of appetite, a very undesirable effect. Of



greatest importance is regularity in nursing. A normal child is permitted to nurse five to six times in twenty-four hours, never longer than ten minutes at the time. During the night the nurse and the child shall have undisturbed rest for eight to ten hours.

No artificial food ranks with normal human milk.

**The Excretion of Urea and Eclampsia.**—DAVID L. EDSALL (*Am. Jour. of Obst. July, 1903, p. 107.*)—In discussing a paper of Dr. Norris before the College of Physicians of Philadelphia the writer emphasizes that the examination of the urine for urea as an indication for the possible onset of eclampsia or of renal disturbance is extremely unsatisfactory and unscientific. One fact that is commonly overlooked by practitioners in general is that the excretion of urea is far more dependent upon the amount of nitrogenous food that the patient takes than it is upon any other factor; the urea excretion is of no diagnostic value, unless the amount of nitrogenous food that the patient takes is known. There is another fact that makes the determination of the amount of urea in the urine valueless, a fact which is well established both by commonsense and careful investigation, namely, that a woman in late pregnancy retains nitrogen. She naturally must do so, in order to provide tissue for the growing fetus.

**Prophylaxis and Therapy of Puerperal Fever.**—H. FEHLING (*Muenchener Med. Wochenschr.*, August 18, 1903.)—Cases of puerperal infection are by no means so infrequent as they ought to be. During the last ten years in the Obstetrical Clinic of Strassburg three hundred and seventy-seven cases were treated with a total mortality of 17.7 per cent. In just one-fourth of the patients obstetrical operations of some kind had been performed, and this class of patients showed a mortality of 29 per cent. while the mortality of patients infected during or after spontaneous labor was but 11 per cent. One of the most striking features of these statistics is the fact that among the obstetrical operations performed on these patients, manual extraction of the placenta takes the first place (47 per cent.). The most common and most dangerous form of infection is pyemia; almost 39 per cent. of the patients who succumbed to the infection died of pyemia, and in every case of pyemia that was observed the issue was fatal. These figures show convincingly the immense danger of manual removal of the placenta, an operation altogether too popular with the general practitioner. While the records of the maternity show a percentage of but one-half of one per cent. as for the frequency of this operation in sixteen hundred confinements, the official health reports of the Dukedom of Baden place the percentage in general practice as 2 per cent. A proper management of labor reduces the necessity for this dangerous interference. Expression after the mode of Crede under chloroform must be tried before the manual extraction is resorted to. If the operation is unavoidable, vulva and vagina have to be scrupulously disinfected.

The article exhibits the author's views on the use of rubber gloves in obstetrical work. He believes that they cannot be used for most of the obstetrical operations and he, therefore, emphasizes the necessity of the obstetrician avoiding contamination of his hands by the use of rubber gloves in gynecological work and in handling infected cases.

As regards the therapy of puerperal infection, he saw some encouraging results with the use of a 2 per cent solution of argenticum colloidal, ten to twenty cubic centimeters being injected into a vein once a day, if necessary, eight to ten days in succession.

**Disadvantages of the Trendelenburg Position.**—K. FRANZ (*Centralbl. f. Gyn.*, August 8, 1903.)—Considering the fact that the Trendelenburg position is at present almost generally used for operations in the lower abdomen, it is of no little interest to note that surgeons are beginning to point out the disadvantages

of this position. Kraske, in a paper read before the last Congress of German Surgeons, referred to paresis of the N. tibialis ant., to sudden emphysema of the abdominal walls, to very serious disturbances in the circulation, to occlusion of the intestines by the formation of a volvulus, to hematemesis, to aspiration of stomach contents into the air passages, as due to the elevated pelvic position. Several cases of hemorrhages in the brain are on record following operations performed in this position.

This paper of Franz deals in detail with the effect of the Trendelenburg position upon the breathing of the anesthetized patient. He bases his conclusions upon comparison of curves of pulse and respiration produced with the sphygmograph and kymograph, respectively, both upon anesthetized and non-anesthetized individuals. He observed that in Trendelenburg position the abdominal action in breathing is lessened to a considerable degree in every instance, while the thoracic respiration in compensation is but slightly or not at all increased. It is safe to say that the elevated pelvic position in a great number of cases interferes with the proper ventilation of the lungs during anesthesia. This lack of the necessary amount of oxygen may prove harmful to the general condition of the patient and probably shows its effect first of all upon the central nervous system.

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## PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

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**On the Persistence of Diphtheria Bacilli in Convalescents and Their Presence in Healthy Subjects Brought in Contact with Diphtheria.**—DOURCART (*Rev. Mens. des Mal. de l'Enf.*, September, 1903) summarizes his studies of the literature and his own observation as follows:

1. The Klebs-Loeffler bacillus is found in the mouths of persons who have not recently had diphtheria, but this is very exceptional. Even when the mouths and noses of healthy persons (who have been living in contact with diphtheries) are examined, it is very exceptional to find bacilli. This is particularly true for adults. In children bacilli are sometimes found.

2. In cases of diphtheria treated by antitoxin, the Klebs-Loeffler bacillus disappears with the membrane in 65 per cent. of the cases. In 20 per cent. of the cases, the bacillus persists for several days, in 15 per cent. it persists longer. There is no doubt that in exceptional cases, it may persist for several months.

3. It appears that when the bacillus persists after the disappearance of the membrane that it assumes various atypical forms, which are generally less virulent than the typical forms.

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**Infections of the New Born.**—HAMILL AND NICHOLSON (*Archives of Pediatrics*, September, 1903) report a series of carefully observed cases of infections of the new born. They do not think that the present classification of these conditions is a good one. All the clinical manifestations described under the headings of melæna, hemorrhagic disease of the new born, hæmophilia neonatorum, Buhl's disease and Winkel's disease may exist as evidence of any one of a number of infections, the nature and severity thereof depending upon the virulence of the organism and the degree of individual resistance. Any classification to-day must therefore be bacteriological. It is noteworthy, however, that in six recorded cases, six different micro-organisms were isolated at autopsy, viz., *B. pyocyaneus*, *B. lactis aerogenes*, colon bacillus, staphylococcus aureus, *B. coli immobilis* and a streptococcus. The literature contains instances of infection by many other organisms.



These infections occur most often in maternity hospitals—not infrequently epidemically. While air infections may occur, the actual infection is probably more often carried by the clothing and hands of attendants, the stools and buccal secretions of patients, the bed clothing and infants' napkins.

Regarding the ports of entry, the authors believe that the buccal cavity, tonsils, pharynx and gastro-intestinal tract are the most common, and they think that the cord has been given too much prominence in this connection.

The post mortem appearances may be summed up in the words congestion and hemorrhage, which, however, may vary greatly in different cases. There is, however, nearly always congestion of spleen, liver, kidneys, suprarenals, mesenteric lymph nodes, stomach and intestines. There may be hemorrhages in any of these organs and bloody effusions into the serous cavities are frequent. The lungs show various degrees of congestion or atelectasis and hemorrhagic infants are common.

Histologically the principle changes are those commonly found in infectious conditions, cloudy swelling, fatty degeneration and infiltration.

The symptoms usually come on during the first week of life. Among the more important are fever ( $100^{\circ}$  to  $108^{\circ}$  F.), diarrhœa, icterus and skin eruptions of all varieties, petechial ecchymosis, bullæ, erythemata, etc. A common form is a papulo-vesicular eruption involving face, neck, shoulders and flexor surfaces of the arms.

Hemorrhages from skin, cord, eyes, ears, nose, mouth, bladder, bowels are common. Apathy is extreme, emaciation rapid. The nervous phenomena are varied, consisting, however, mainly of different types of convulsion.

The diagnosis is ordinarily not difficult, the prognosis, unfortunately, distinctly bad, particularly in institutions.

Treatment must be almost wholly directed to prophylaxis. The authors give minute directions as to the handling of infants, and the care that attendants should take to prevent their carrying infection.

Delestre has seen excellent results in these cases from bleeding, substituting saline solution for the fluid removed. The authors have had no experience with this method, however.

**The Reduction in Infant Mortality in New York and the Agencies Which Have Been Instrumental in Bringing it About.**—FREEMAN (*Medical News*, September 5, 1903) has prepared a most interesting set of charts and tables, showing that the infant mortality has fallen from 242 to 158 per 100,000 in the last ten years—the average infant mortality in the United States being 159 per 100,000 in 1900. The original article should be consulted for the details, but the following conclusions of the author may be cited here:

1. The shockingly high infant mortality of all countries is avoidable, as is evidenced by the fact that well cared for infants show a very low rate.
2. As the active cause of the mortality, defective feeding, stands pre-eminent—heat, humidity and bad hygienic conditions are contributory causes.
3. The marked decline in infant mortality in the United States, and especially in New York City, is due for the most part to the decline in mortality from summer diarrhœa.
4. This is due primarily to the improvement in the milk supply, and the general adoption of pasteurization, or sterilization of this product.
5. Other agencies in New York City are the improved city administration, the milk inspection of the department of health, the Straus milk charity (the furnishing of pure milk at less than cost to the poor), the fresh-air work of the St. John Guild and similar associations, cleaner streets and asphalt pavements, the new small parks, play grounds and recreation piers, the improved tenements and the use of diphtheria antitoxin.

**Disturbances of Respiration in the New Born.**—WILSON (*Archives of Pediatrics*, September, 1903) reviews the special causes of failure of respiration in the new born. Among the rarer causes may be mentioned traumatic effects, *e. g.*, pressure from intracranial hemorrhage. Recurring respiratory failure of bulbar origin (the result of infection) has also been noted.

More common are the failures from toxic causes, the result of alimentary disturbances. Sudden syncope with respiratory failure, with cyanosis and coldness of extremities, often associated with fever are often dependent upon gastro-intestinal derangement and relieved by appropriate medication.

**Dyspnœa.** Congenital cardiac lesions produce a constant dyspnœa with cyanosis. Pneumonia produces marked dyspnœa, so, too, congenital atelectasis.

Stenotic dyspnœa may be due to congenital stenosis of the larynx, or to membranous (streptococcic) inflammation of the larynx. The thymic origin of dyspnœa is not of great importance, although in older children it is more frequent (status lymphaticus.)

Where there are no signs of intrathoracic trouble, the possibility of dyspeptic dyspnœa must be borne in mind. This dyspnœa is purely toxic and has nothing to do with intra-abdominal pressure. The diagnosis is to be made by the presence of the syndrome of gastro-intestinal disturbance.

A rare cause of dyspnœa is diaphragmatic hernia, the diagnosis of which intra vitam is exceedingly difficult. In contradistinction to dyspnœa, rapidity of respiration is often found, *e. g.*, in dyspeptic or febrile conditions, in bronchitis or pneumonia. In systemic septic infection it is nearly always present, and may be (as in a case reported by the author) one of the early symptoms of this condition.

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## NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

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**Some Observations on the Treatment of Neurasthenia at the Dispensary Clinic.**—MACCOY (*Brooklyn Med. Jour.*, September, 1903).—In dispensary practice the distinction between neurasthenia and hysteria cannot always be made, but it is very essential that hysteria, hypochondria, and neurasthenia should be differentiated if any therapeutic success is to be hoped for. The author takes as his starting point for neurasthenia the recognition of the fatigue symptom. This may be either mental, motor or sensory. This symptom has sometimes been called irritable weakness and in it is the phenomenon of exhaustion appearing after an inadequate degree of muscular effort. Mental sluggishness, loss of interest in occupation and dread to assume responsibilities, tremor, muscular weakness, palpitation of the heart following slight exertion, sensory paresthesias, headache, pressure bands, etc., etc., are the usual symptoms met with. Most cases show a very marked improvement under modifications of diet, bathing, and small doses of bromide. This article is chiefly of value because it puts in a very clear way the distinction that can be made between the different neuroses that are met with in a dispensary practice.

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**Trigeminin—A Sedative and Analgesic**—OVERLACH (*Berlin Klin. Woch.*, August 31, 1903).—This new preparation is a synthetical compound produced by the action of butyl chloral hydrate upon pyramidon. It forms long white crystals easily soluble in water. Trigeminin, like its derivative, does not produce sleep except in large doses, but it has an almost specific action upon the



painful affections of the cranial nerves. In therapeutic doses it appears to have no effect upon the heart. Twenty cases of various kinds of painful affection, especially of the trigeminal, are given by the author, in which trigeminin was of value. The dose for adults is between 0.5 and 1.2 grams, grains 7 to 20.

**A Consideration of the Hereditary Factors in Epilepsy.**—R. E. DORAN (*Am. Jour. of Insan.* No. 1, 1903).—The first 1300 patients admitted to the Craig Colony for Epileptics were studied by Doran with the view of ascertaining to what degree the various hereditary factors have acted. The results: (1) That though it was impossible to secure data in many cases, yet a definite history of the various neuroses or alcoholism was found in 46.5 per cent. of the total. (2) Alcoholism, epilepsy and insanity combined were responsible for 38.6 per cent. of the total cases. (3) The paternal alcoholism existed in 18 per cent. of all cases. (4) Diseases other than these connected with the nervous system have little hereditary influence in epilepsy. (5) The age of onset is influenced by the character of heredity.

**Results of Brain Surgery in Epilepsy and Congenital Mental Defects.**—SPRATLING (*Am. Jour. of Insan.*, No. 1, 1903).—This is a timely article on a subject which is of the greatest interest. Epilepsy has become such a comprehensive term that the special type in question must always be specified. It is the careless use of the term which has led to the confusion which is apparent when the results of surgical treatment are considered. The author lays down this fundamental rule: The epilepsies which most seriously impair the conscious operations of the mind are less amenable to treatment by the surgeon than the epilepsies that leave the mind most largely unaffected. The epilepsies which are accompanied by motor symptoms are the only ones which naturally might be expected to show results from surgical interference. Purely psychical forms are not amenable to this method of treatment. As the former comprise by far the larger proportion of cases, the possible material for surgical intervention is large, as much as 60 per cent. Among this 60 per cent., however, only a very small proportion will benefit by surgery. Thirty-three cases which have been under the author's observation from one to eight years are described and the following results noted: Twenty of the thirty-three were due to trauma of the head. The average duration of the epilepsy approximated five and one-half years. In twenty-one no improvement of the disease, either temporary or permanent, resulted. In eight the attacks were lessened in frequency and in severity, the operation being a part of the treatment only. In three the disease was much worse after the operation. In one there was apparent recovery. It is worthy of notice that the mortality from the operation was *nil*. As dismal as is the result in epilepsy, it is more so in idiocy and in imbecility. Eighty-three cases show the following: Twenty-four per cent. died, sixty-five per cent. unimproved, and ten and one-half per cent. improved. The only improvement noted in the ten and one-half per cent. was that the patient was quieter. The fact that such operations are so few as compared to what they were ten years ago is the strongest argument against the utility of the operation in the majority of cases. Surgical interference may still be used in isolated cases of idiocy, but it seems clear that its usefulness is very restricted.

**The Relation of Bulbar Paralysis and Progressive Muscular Atrophy.**—TAYLOR (*Rev. of Neurolog. and Psychiatry*, No. 9, 1903).—Taylor, in a short article consisting of several case reports, calls attention to the degeneration of the lower motor neurones supplying the limbs in cases of bulbar palsy. This is more commonly observed in cases where both the upper and the lower neurones are involved, as in amyotrophic lateral sclerosis. As a rule, the involvement of the extremities precedes the bulbar symptoms, but in many cases the bulbar palsy

leads to the death of the individual too soon for the atrophy of the limbs to become apparent. The cases quoted in the article illustrate the relation of bulbar palsy, muscular atrophy and amyotrophic paralysis and point to the conclusion that all of them are different phases of the same fundamental disease.

**Arguments in Favor of the Existence of a Separate Center for Writing.**—GORDINIER (*Am. Jour. of Med. Sci.*, July, 1903).—Gordinier reports a very interesting case of brain tumor, which appears to prove the existence of a special center for writing. According to Dejerine and Collins, the ideal case to prove the existence of a center whose function is to store graphic images and whose destruction would cause agraphia, would be one in which there was inability to write spontaneously and from dictation, and in which no disturbance of motility, particularly no disturbance of the right upper extremity, no aphasia, no alexia, no verbal deafness and no verbal blindness existed.

**CASE.**—Intelligent woman, age thirty-five years; headache, vertigo and gradually failing vision; no disturbance in speech. Optic neuritis of both eyes; no paralysis or atrophy of extremities. Recognition and names of objects perfect; speech normal. Total inability to write, although she understands perfectly written language and can read to herself aloud. She cannot write voluntarily nor form correctly a single letter, and cannot write from dictation or copy. She holds the pen in a perfect manner, and performs with it as if to write. Her writing consists of nothing more than a series of united curves. The diagnosis of brain tumor was made, and an operation performed, from which she died. Post-mortem showed a rapidly growing glioma occupying the foot of the second frontal convolution. The case seems to prove the existence of a separate and distinct cortical center for writing, having the same relation to writing movements as the motor speech center has to speech movements. This center is located at the base of the second left frontal convolution for the right handed, and possibly in the same location in the right hemisphere for the left handed. Destruction of this center produces pure motor agraphia without aphasia or paralysis of either arm.

## GENITO-URINARY SURGERY

IN CHARGE OF

H. McC. JOHNSON, M. D.

**Catheterization of the Ureters.**—KEEFE (*The Providence Med. Jour.*, September, 1903).—After discussing the method and instruments for this operation, and reporting his cases, the author says that there were seventy-five cases in which the ureters were catheterized. In forty-two of these cases 191 examinations of the urine were made subsequent to the passage of the catheters. In three cases the examinations showed no change in the urinary constituents following the passage of the ureteral catheter. The other cases showed blood and a trace of albumen, which was transitory, found in some cases but in a single examination, and in others over a period of ten days, in every instance finally being absent. Some of the blood was due to blood coming from an over-stretched urethra, and the albumen present in these cases may have been due to the presence of the blood. In thirteen cases hyaline casts were found, and in one of these cases the hyaline casts were present before the ureteral catheterization. In six cases there were found hyaline and granular casts subsequent to the passage of the ureteral catheter, and in one of these cases the casts were present before the ureteral catheters were passed. The patient showed no other evidence of disturbance of the kidney than that shown by the examinations of the



urine. He is led to believe that with care in the passage of a ureteral catheter no injury to the patient is likely to ensue.

He is convinced that the day is not far distant when the surgeon will use the cystoscope in urinary diseases as frequently as the ophthalmologist uses the ophthalmoscope in affections of the eyes.

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**Nephropexy in a Case of Chronic Nephritis.**—HENRY (*Amer. J. Med. Sciences*, September, 1903).—The case seemed to be one suitable for decapsulation of the kidneys. He was young, still strong, and the expectation of life was some six months or a year, as far as could be judged. The operation failed to be of use and unquestionably hastened death, the result of pain, exhaustion and disturbance of the kidneys. The patient lived eight days, and following the operation there was severe pain with a marked falling off of the amount of urine and urea.

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**The Significance of Albumin and Casts in Surgical Patients.**—MUNRO (*Med. News*, September 12, 1903).—The question of operating in the presence of albumin and casts, and the presence of these indications of renal disturbance in recent surgical patients at the Boston City Hospital, are considered by the writer. He concludes by saying that we should expect evidence of renal irritation in over a third of the surgical patients found in a municipal hospital. The mere presence of a trace of albumin, with or without hyaline and granular casts, unattended by other evidence of renal danger, should not influence the prognosis in surgical disease or operation. The presence, however, of albumin and casts should place us on the watch for other and more significant signs of organic degeneration which may prove serious obstacles to operation or satisfactory convalescence. Furthermore, albumin and casts alone are apparently no contra-indication to the administration of ether. The age at which we must expect albumin and casts in surgical patients is under thirty-five years in over half the cases. The proportion in young and otherwise healthy children is probably as great as in adults.

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**The Suprapubic Operation for the Radical Cure of Varicocele, with the Report of Eighteen Cases.**—THORNBURGH (*Medical Record*, August 29, 1903).—Attention is called to the advantages of this operation for varicocele and thirty-three cases with good results are reported. The author gives the following technique:

After proper sterilization of the operative field, the finger of the operator is introduced into the external ring and a nick made with the knife directly over the tip of the finger. With this nick as a landmark an incision 3 cm. long is made, parallel to Poupart's ligament. The deep fascia is cut through with the knife, and then a little blunt dissection brings the cord to view. No blood vessels of any moment are encountered, oozing being checked by hot, normal salt solution. The sheath of the cord is picked up between mouse-tooth forceps and torn open. The finger of the operator is introduced and the whole cord easily raised from its bed and brought out of the wound. The vas is recognized by its white appearance and cord-like feel, and is separated from the rest of the cord downward to within an inch of the testis. The testis can readily be brought into view by gentle traction on the cord. The vas is separated from the vessels for about 6 or 7 cm. in an upward direction also. The vessels are tied with No. 3 cumolized catgut ligatures, the vessels between them (5 to 6 cm.) excised, the stumps inspected for oozing, the ends approximated and the ligatures tied to each other, thus forming a support for the testis. The cord and vas are dropped into the bottom of the wound and the wound closed by continuous retention and approximation sutures, No. 1 cumolized catgut being employed.

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**A Prostatic Tractor for Perineal Prostatectomy.**—LYDSTON (*Ann. Surg.*, September, 1903).—Finding a tractor of some kind necessary in quite a proportion

of cases of prostatectomy, Lydston has devised such a one as may be introduced closed into the bladder through an opening in the membranous urethra. It is opened in the bladder cavity by the finger through the perineal wound. After completing the operation a finger is introduced into the bladder, the retractor closed and removed.

**Abnormal Frequency of Urination Treated with Epidural Injections.**—VALENTINE (*Med. Rec.*, September 26, 1903).—Eight cases are reported in which epidural injections, as advocated by Cathelin, were given for urinary incontinence. The results were good. The methods of the procedure are given and the following deductions drawn:

1. That epidural injections with decinormal salt solution offer the most promising results in abnormalities of urination due to faulty vesical innervation.
2. That incontinence of urine, enuresis, excessive frequency of urination (unless due to other pathological conditions), can at least be ameliorated by epidural injections.
3. That, cautiously performed, epidural injections are in nowise dangerous to the patient.
4. Epidural injections are no more painful than any hypodermatic injection with a mild solution.
5. Epidural injections can be performed by any one who follows the technique outlined and is alert to those anatomical variations which are so frequent in the region.
6. The immediate effects of epidural injections are very rarely even disagreeable.

## DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

**Adenoma Sebace Circonscrit.**—CH. AUDRY (*Annales de Dermatologie et de Syphiligraphie*, July, 1903).—After a thorough discussion of the subject the author gives, *en resume*, the following conclusions:

Clinically: adenoma sebace circonscrit is not a tumor, properly speaking, but a superficial lesion of the integument procured by the agglomeration of more or less of projecting papules disposed in groups. The dimensions vary from one to eight centimeters.

The form of these groups is indeterminate—linear, ellipsoidal, quadrangular, etc. Their color is variable—red, brown, yellow. Their surface is uneven, indurated, ridged, according to the elevations of which they are composed. The orifices at the summit are obstructed by the scales and adherent debris, and obtrude under the pressure of the sebaceous matter. The consistency is altogether firm or flabby. The epidermis is smooth. The groups are notably circumscribed, sharply defined from the healthy integument. There are no nevi or telangetases.

In all the author's cases the plaques or groups were unique and occupied a point on the head, forehead, temple, nose or cheek. There is no pain or itching. The disease progresses slowly but surely, requiring many years to acquire a small dimension. The writer does not know of any instance of the plaques' ulcerating, yet they are liable to infection. All the author's cases were men. The disease may appear at any age, but it is most frequent in adults.

Histologically: the plaques are formed of a greater or less number of sebaceous glands which are enlarged or hypertrophied. These glands have their



normal structure and formation, and are independent of the pilos follicles which seem to have disappeared. The follicles of the glands are dilated, and often form cysts.

The epidermis is normal, also the neighboring connective tissue. The lesion, in short, is a neoplasm, slowly progressive, of variable origin and intermediate cause. The evolution of the disease is characterized by disposition in plaques. It is an adenoma and not a simple hypertrophy. Without a doubt, a certain number of cases begin in infancy and manifest themselves at puberty. The writer thinks these lesions should be classed with nevi in general, and especially with nevi sebaces. The treatment is extirpation.

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**A New Case of Cure of Tuberculosis of the Skin by a Solution of Potassium Permanganate.**—MM. HALLOPEAU et LAFFITTE (*Annales de Dermatologie et de Syphiligraphie*, July, 1903).—This is the fourth case to be presented by these gentlemen to the French Society of Dermatology and Syphilis, notably improved by the local use of a solution of permanganate of potash. This patient had a tuberculous ulceration which extended almost over the whole of the back of the hand, which in six weeks has almost cicatrized. The reporters know of no other method which would give such results in so short a time. The other three cases, lupus of the face, have been cured in eleven months, six months, and six weeks, respectively.

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**Epithelioma of the Nose, Colloidal Cancer of the Stomach, with Visceral Metastases and Miliary Colloidal Nodes of the Peritoneum.**—MM. GAUCHER, GASTON et WEILL (*Annales de Dermatologie et de Syphiligraphie*, July, 1903).—The interest of this case is the preliminary appearance of an epithelioma to the visceral involvement noted in the title of the paper. The disease began from a traumatism on the nose, which produced a small lesion which in time ulcerated. This ulceration increased in depth and circumference, destroying most of the cartilage and the subjacent osseous tissue. It was diagnosed epithelioma. Anti-syphilitic treatment was given without avail for two months. There was no cervical aderopathy. Autopsy showed the peritoneum studded with small, pea-sized nodules, and a mass in the stomach the size of a fetal head. All of these had undergone colloidal degeneration.

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**A Case of Muro-Fibromatosis (Von Recklinghausen's Disease), with Paralysis and Muscular Atrophy.**—H. H. THOMAS, M. D. (*Johns Hopkins Bulletin*, August, 1903).—The remarkable feature of this case is the association of the paralytic symptoms; and the question, in the writer's opinion, is whether these symptoms can be due to analogous growths in some other part of the nervous system. It is well known that tumors of the nervi trunks are common in association with neuro-fibromata of the skin.

This case was a single woman, fifty-seven years old, with good heredity and nothing in her history of importance. Tumors of her skin have been present since early childhood, but have increased markedly in the last years. For five years she has suffered from sharp, stinging pains in her feet and legs. Weakness of the legs made its appearance with the pains, and has gradually increased. For two years she has had great difficulty in getting about, and for the last year she has been unable to walk. Her arms have also become weak. Muscular twitchings have been noticed since the beginning of the weakness. Some weakness of the bladder. The patient is covered with innumerable skin tumors, splotches of pigmentation, and here and there bluish areas of skin. She is apathetic and dull; speaks in a thick, muffled voice. The case is very typical of fibroma molluscum. The tumors are outgrowths of the connective tissue, sheaths of the cutaneous nerves, and are often associated with similar growths from other nerves, forming a condition generally called diffuse or generalized neuro-fibromatosis, or von Recklinghausen's disease.

## LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

**On the Present Status of Our Knowledge of Vincent's Angina.**—CONRAD (*Archiv fuer Laryngologie und Rhinologie*, Band 14, Heft 3).—After giving a short review of the literature on Vincent's angina from the time of Vincent's first publication in 1897 to the present time, the author carefully notes the symptoms and the course of the disease. He states that it manifests itself as a grayish-white pseudo-membrane similar to the diphtheritic membrane, usually confined to one tonsil. This exudate is soft, soggy and frequently tenacious. The edge is irregular and surrounded by a very red zone. At the beginning this membrane can be easily removed, leaving a bleeding surface; the following day it will have reformed, showing the same picture. The membrane continues to spread itself over the entire tonsil, which is usually very much swollen, and may extend to the soft palate and uvula. The above is the picture of the first or membranous form of the disease. The second form or second stage is the ulcero-membranous. Here there is a necrosis with ulceration which is often looked upon as a chancre. At times the ulcer is flat, the base somewhat hardened and surrounded by an inflammatory area. After removing the covering of the ulcer many bleeding points will be seen.

With the above local manifestations there are also, as with other forms of angina, disturbances, such as pain on swallowing, fever as high as  $104^{\circ}$ , enlargement of the submaxillary and cervical glands, foul breath and coated tongue. This disease may run a very mild course with scarcely any local manifestations or it may be quite severe, having extensive ulcerations.

Two forms of bacteria are given as the direct cause. They are bacilli which are from 10 to 12  $\mu$  in length and 0.5  $\mu$  in width, which are somewhat thickened in the middle, having the appearance of a spindle. At times the bacilli are short and comma-shaped, and others as threads, but they can be recognized by their pointed ends and granular protoplasm. The bacilli are very numerous at the beginning of the disease and all forms may be present at the same time. Thiosin and carbol-fuchsin are the stains recommended by Vincent. It can also be stained by Gram's method, but gives up its stain if left in alcohol for too long a time. When stained, a vacuole can be seen in each spindle.

The second microbe is a spirochete, which is very difficult to stain, the best stain being gentianviolet. Vincent considers it identical to the spirochete found at times in the normal saliva.

On the clinical findings alone an exact differential diagnosis between Vincent's angina and other forms of angina cannot be made. This is especially true of diphtheria and lues. With the aid of the microscope an exact diagnosis can be made.

The prognosis is, as a rule, good, as serious complications are the exception. The treatment consists of antiseptic applications, light diet, etc.

**On the Treatment of Chronic Suppurations of the Middle Ear with Formalin.**—GERONHI (*Archiv Ital. di Otol., etc.*, Band xiv, Heft 1; rev. *Arch. fuer Ohrenheilkunde*, Band 59, Heft 1 u. 2).—After carefully cleaning the external auditory canal and middle ear the author packs them with gauze, which is impregnated with a 2 or 5 per cent. solution of formalin in glycerine. At times he uses solutions as strong as 10 per cent. If the patient is to carry out the treatment himself, he is instructed to instill from two to three drops of a 5 per cent. solution twice daily. Fifty-four cases in all, mostly chronic cases with foul



smelling discharges and granulating mucous membranes, were treated with the result that thirty-four were permanently cured. Usually there was a marked diminution in the odor after the first application, and in only a few cases was there much pain caused by the applications.

**The Differential Diagnosis of Acute and Chronic Brain Abscess by Means of the Encephaloscope.**—WHITING (*The International Journal of Surgery*, September, 1903).—The author's encephaloscope represents the principle of the cystoscope. It consists of a hollow metal tube with a flaring orifice and slightly contracted extremity. An obturator accurately fits into the cavity of the tube so as to avoid any possible injury to the brain substance while passing the instrument into the abscess cavity. By means of this instrument the author claims it is possible to determine absolutely if we are dealing with an acute or chronic brain abscess. The appearance of the walls of the abscess cavity in acute purulent encephalitis is like that of some space surrounded with delicate, smooth mucous membrane, while in the chronic cases the walls are invested by a dense, yellowish-white opaque membrane of firm consistency, which is usually in folds. The clinical value of the encephaloscope lies in the fact that:

1. We can determine positively whether evacuation of the purulent contents of the abscess is complete.
2. We can determine whether there exist any plastic bands which interfere with the drainage.
3. We can determine whether we are dealing with an acute or chronic brain abscess, the prognostic importance of which cannot be overestimated.
4. It is of great assistance in the post-operative treatment of brain abscess.

**The Rational Treatment for Mouth Breathing.**—FITZGERALD (*Medical Record*, September 5, 1903).—The writer states that mouth breathers are always afflicted with chronic nose, throat and chest affections, and that such diseases of the respiratory tract will never be stamped out until the human family will have learned to take every inspiration through the nose. He divides mouth breathers into confirmed and moderate: the latter are not conscious that they breathe abnormally until convinced. His test is to have them read aloud, when it will at once become apparent. The treatment consists in restoring the nose to a condition as nearly normal as possible, and then insist upon its use. He condemns the use of sprays and douches, as they only irritate the mucous membrane, and thus increase the obstruction. What the patient requires is a normal passage of air through the nostrils and pharynx. If he sleeps with his mouth open, a mouth guard in the form of an adhesive plaster placed vertically across the mouth should be worn at night until normal breathing is established. During the day mouth breathers should be required to breathe forcibly through the nose at the rate of one breath per second (ten times at least), eight or ten times in twenty-four hours. Children should be taught from infancy.

**The Abuse of Inflation and Massage of the Middle Ear.**—AMBERG (*American Medicine*, September 5, 1903) believes that the indiscriminate use of inflation and massage are productive of much harm in some cases of otitis media, especially in the sclerotic cases. Three suggestions are made for the treatment of non-inflammatory processes of the middle ear:

1. The use of the Siegle pneumatic ear speculum, especially for diagnostic purposes, is an absolute necessity.
2. Treatments should be continually controlled by hearing tests.
3. Local treatment of an injurious nature should absolutely be desisted from.



## OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

**Eye Complications of Small-pox.**—A. R. BAKER (*Jour. A. M. A.*, September 12, 1903.)—The paper is based on observations made by the writer during the recent epidemic in Cleveland. In the years 1898-1901 the city passed through an epidemic of mild variola, during which 2746 cases occurred with a mortality of only .015 per cent. During this epidemic severe eye complications were not observed either by the writer or his colleagues. The epidemic was terminated by vaccination and rigid quarantine. Unfortunately the use of infected virus resulted in the development of tetanus in a number of cases. This led to the abandonment of general and compulsory vaccination and the adoption of a vigorous crusade of house-to-house disinfection with formaldehyde. The total and disastrous failure of this policy is indicated by the appearance of a malignant and highly contagious type of the disease in 1902, when 1248 cases resulted in a death rate of 17.9 per cent.

The severe eye complications observed included perforating ulcer, hypopyon, panophthalmitis, corneal fistula, iridocyclitis, adherent leukoma and corneal staphyloma. The final outcome could hardly have been more disastrous: in twenty-three cases described, in four both eyes were blind, in eight one eye was either atrophied or had to be enucleated, in six one eye was blind, but the form of the globe was preserved, in three vision less than 20-200, in five vision greater than 20-200, and in two corneal fistulae persisted. All these cases had severe confluent variola and none had been successfully vaccinated.

Corneal lesions do not appear before the third week. Pus from the lesions is conveyed to the eye by the fingers, etc., or may come from the crusts on the lid-margin. In patients whose vitality has been greatly lowered a true keratomalacia may occur. Bacteriologically, streptococci and occasionally staphylococci are found. The writer remarks that "the patients who suffered most severely were those who barely escaped with their lives, and, doubtless one reason there are not more blind from small-pox, is because so many of the confluent cases die." Cleansing the face and lids with a sublimate solution 1:4000 and boric acid collyria four times a day proved to be the best prophylactic measures.

**A Case of Optic Atrophy Developing Rapidly After Uterine Hemorrhage.**—CHEVALLEREAU (*Arch. d'Ophtalm.*, July, 1903).—The patient gave a history of continued headaches, worse during menstruation, which, however, had always been regular and painless. One miscarriage in nine pregnancies. Since the last pregnancy (which terminated at eight months) she had frequent uterine hemorrhages. Syphilis was contracted three years before the beginning of the last pregnancy.

Vision was completely lost twenty-four hours after a copious hemorrhage. Ophthalmoscopically, the disks appeared white with fringed borders, and were surrounded by hemorrhages. At the end of six months, examination showed no material change.

In a resume of the twenty-eight cases in the literature, the hemorrhage occurred after accouchement at term in nine, after abortion in ten. In eight cases there was no connection with pregnancy. In one it occurred in a case of uterine fibroma. In all cases the hemorrhage was abundant. Headache, general weakness, profound depression, syncope and vertigo are the usual immediate symptoms. Vision becomes increasingly dimmer and dimmer until the blindness is total. Disturbance in vision may be immediate; in other cases sight is preserved from



two to twenty-one days. In most cases the trouble is equal in the two eyes; rarely one eye alone may be affected. Pupils are dilated and react sluggishly, or not at all. The fields are irregularly contracted. Some cases show complete atrophy of the disk, in others the papillæ are simply pale. Optic neuritis and choked disk have been observed. The vessels are always diminished in calibre and may be reduced to mere threads. In three cases retinal hemorrhages occurred.

The conclusions reached by Terson from histologic findings in cases of Hirschberg, Ziegler and Raehlmann, are, in part, as follows: Ischemia of the territory supplied by the central retinal vessels accounts for the rapid trophic changes in the nervous elements. This ischemia may be due to spasm alone of the terminal arteries, or to endarteritis. The endarteritis does not obliterate the lumen of the vessel, even when optic atrophy is complete. Retinal edema probably affects the fibres of the nerve and retina.

Prognosis is, in general, absolutely bad. To counteract arterial spasm, inhalation of amyl nitrate may be employed if the case is seen in the beginning.

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**Eye Complications That at Times Attend Measles.**—G. F. SUKER (*Medicine*, September, 1903).—Patients of the poorer classes and those suffering from malnutrition are apt to develop ocular complications during an attack of measles. In the more serious cases syphilitic or tubercular taint may be suspected. Excessive redness and swelling of the fornix with an otherwise normal palpebral and ocular conjunctiva, and the appearance of reddish irregular spots near the lid margin are features characteristic of the initial conjunctivitis. Follicular catarrh may follow an attack.

In scrofulous patients, phlyctenular conjunctivitis and keratitis, often accompanied by nasal trouble, are not infrequent at the end of the second week of convalescence. Keratomalacia is rare. Of lid affections, marginal blepharitis, either of the hyperemic or pustular type, occurs and tends to run a chronic course.

Gangrene of the lids, followed by ectropion, has been observed. Among the rarer complications are dacryoadenitis, dacryocystitis, albuminuric retinitis and metastatic choroiditis. Optic neuritis of all degrees of severity is not very infrequent. Total blindness occurring during measles is rare and is probably due to an accompanying meningitis.

Photophobia is an early symptom, and may be the very first. An enfeeblement of accommodation and the power of convergence is the cause of asthenopia frequently noted on recovery. Paresis of accommodation is, according to Suker, "nearly as frequent in measles as in diphtheria." Partial ophthalmoplegia, *e. g.*, paralysis of one extrinsic muscle and of accommodation, rarely occurs.

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## BOOK REVIEWS.

**KING'S MANUAL OF OBSTETRICS.** By A. F. A. KING, M. D., Professor of Obstetrics and Diseases of Women in the Medical Department of the Columbian University, Washington, D. C., and in the Medical Department of the University of Vermont. Ninth edition, revised and enlarged. In one 12mo volume of 628 pages, with 275 illustrations. Cloth, \$2.50, net. Lea Brothers & Co., Publishers, Philadelphia and New York. 1903.

This volume may justly be looked upon as a model of a "manual." The author presents concisely, accurately and clearly the principles of modern obstetrics. A perusal of the book will easily explain the reason why it is now presented in its ninth edition, a proof of popularity that is shared by very few medical publications. In the preface to this ninth edition the author states that all changes have been made which the progressive development of obstetric science seemed to require. In the reviewer's opinion these changes are in several points deficient. The internal secretion of the ovaries is not even mentioned, the old Hunterian theory of the implantation of the ovum is given, while Peters' theory may be considered as the one at present generally accepted. Not a word is said about the fetal theories in the etiology of eclampsia. The possibility and actual occurrence of super-fetation is reported as "now generally admitted." Topics like "prophylactic treatment of the eyes of the newborn," "diseases as indications for artificial interruption of pregnancy" and especially "infant-feeding" would seem to deserve more than a few lines—even in a manual.

**PLAIN HINTS FOR BUSY MOTHERS.** By MARIANNA WHEELER. Illustrated by F. M. MILLER. E. B. Treat & Co., New York. Price, 35 cents.

This little book is written in such a plain and simple manner that no one can fail to understand its directions. It is full of common-sense advice as to general health, clothes, food, the bath, etc., and deserves a wide distribution.

**SURGICAL ASEPSIS.** Especially Adapted to Operations in the Home of the Patient. By HENRY B. PALMER, Consulting Surgeon to the Central Maine General Hospital. 90 illustrations. Pages vi-231. Size, large 12 mo. Extra cloth. Price \$1.25 net, delivered. Philadelphia: F. A. Davis Company, Publishers, 1914-16 Cherry street.

This little work embodies in a concise form the principles of modern aseptic surgery. Indeed if it has a fault, this consists in it being a little too concise sometimes; for instance, there are purposely given none of the details of preparing catgut, the author contenting himself with saying that the thing is impossible for the practitioner, so he merely mentions the steps and then tells where the finished products can be purchased. As clear and valuable as is the written contents of this small volume, there is certainly something in the illustrations to be criticized. We are not used to seeing the surgeon's gown with sleeves extending to the wrist, nor are we accustomed to placing instruments ready for the operation upon a towel which has been spread upon a table. We are a long way west of Maine (the author's home), but we know better ways of maintaining asepsis than these, and trust that the next volume of this really valuable little book may contain illustrations more in keeping with the modern acceptance of the subject.